CHAPTER 2

Macroeconomic Policy and Performance

MACROECONOMIC PERFORMANCE over the past 4 years has demonstrated the soundness of this Administration's policies. It has also confirmed the economic analysis presented in the past three *Economic Reports of the President*, refuting critics who predicted the Administration's policies would not work.

In 1993 the President submitted to the Congress a package of measures to reduce the Federal budget deficit that cut Federal spending and raised income tax rates for the roughly 1.2 percent of taxpayers with the highest incomes. At the time, some critics said that these higher tax rates could hurt the economy by blunting incentives to work and to save. Adherents of supply-side theory went further, arguing that a combination of weaker economic performance and increased tax avoidance would result in little or no additional revenue from these higher tax rates. The 1994 *Report* explored this issue and concluded that the proposed increases in tax rates for high-income taxpayers would increase tax revenue without adversely affecting the economy. Three years later this conclusion has been justified. Between 1993 and 1994, households with adjusted gross incomes of $100,000 or more saw those incomes increase by an average of 9.0 percent while their income tax liability increased by 8.9 percent.

Although only a minority of economists shared the specific concerns of the supply-siders, the more general economic effects of deficit reduction have been an ongoing issue. Both the 1994 and the 1995 *Reports* analyzed the short- and long-run consequences of deficit reduction. They argued that, in the short run, deficit reduction should not cause growth to slow, provided the reduction is credible, financial markets are forward looking, and the Federal Reserve responds with an appropriately accommodative monetary policy. Under these conditions deficit reduction should contribute to lower real interest rates, stimulating interest-sensitive sectors of the economy. Indeed, for the most part, this prediction has been borne out over the past 4 years, with durable goods consumption and private nonresidential and residential investment supporting the expansion. Over the longer run, the *Reports* argued, this policy would

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increase saving and investment, thereby augmenting the Nation's stock of productive capital.

In 1996, with the economy growing and the deficit coming down, the question became whether the expansion, then almost 5 years old, was in danger of coming to a halt. That year's *Report* analyzed the reasons why past expansions had ended. It found that expansions do not die of old age. Instead they are brought to an end by specific (if unpredictable) factors, such as a runup of inflation followed by tight monetary policy; weak financial institutions and lack of credit; or a buildup of inventories. The combination of tame inflation, a healthy financial system, and lean inventory-to-sales ratios then prevailing augured well for the expansion to continue—as it did.

This *Report* continues the analysis of salient macroeconomic issues that inform current policy decisions. A number of these relate to inflation. One of the most striking macroeconomic developments of the last few years is the combination of low unemployment with steady inflation. We therefore examine whether changes in the structure of the economy have lowered the unemployment rate that is achievable without risking a rise in inflation—the so-called non-accelerating-inflation rate of unemployment, or NAIRU. Complementing this discussion is an analysis of the costs of inflation in the current economic environment of low and stable inflation and its implications for the conduct of macroeconomic policy.

The chapter then returns to last year's theme of the factors that cause expansions to end, focusing this time on the financial condition of households. We conclude that—notwithstanding recent increases in consumer indebtedness, credit card delinquencies, and personal bankruptcies—the overall financial condition of households poses no obvious threat to the current expansion. Households will also be helped by the recent decision by the Treasury to issue inflation-indexed government securities, discussed in the following section. This innovation will allow the private sector to broaden the array of assets available to households for longer range financial planning, providing greater financial security in retirement.

Economists' understanding of the economy and policymakers' ability to make sound economic and budget decisions are greatly affected by the quality of available economic statistics. This chapter addresses two important measurement issues: the identification of biases in measuring inflation, and the difference between income- and product-side measures of national output. We analyze the extent to which official measures may overstate inflation while understating growth in output, productivity, and the Nation's material standard of living.

Drawing on these analyses, the chapter concludes with a review of the macroeconomic highlights of 1996 and a look ahead, which suggests that all signs point to continued stable growth. The final section describes the economic outlook and presents the Administration's economic forecast.

THE NAIRU AND ITS EVOLUTION

The nonaccelerating-inflation rate of unemployment is a useful concept for thinking about the state of the macroeconomy. The NAIRU (also called the natural rate of unemployment) is defined as the rate of unemployment consistent with a stable inflation rate. Inflationary pressure tends to increase when unemployment is below the NAIRU, and decrease when unemployment is above the NAIRU. A number of explanations for this phenomenon have been proposed, but one plausible story is that, when unemployment is low, firms have to offer higher wages to attract, retain, and motivate new workers than they do when unemployment is high. Nominal wage growth is passed on to purchasers in the form of faster growth of prices.

PREDICTING CHANGES IN INFLATION

The unemployment rate provides useful information about the future course of inflation. This can be seen in its simplest form by comparing the direction of the change in inflation—as measured by the core consumer price index (CPI), which excludes the volatile food and energy components—with the demographically adjusted unemployment rate. Some groups such as new labor market entrants may have higher "normal" unemployment rates than others. The demographically adjusted unemployment rate weights the actual unemployment rates for different demographic groups by their labor force shares in a given base year, in this case 1993. Inflation rose in the 12 months following 28 of the 32 quarters since 1958 in which the demographically adjusted unemployment rate was below 5 percent, and fell in 26 of the 32 quarters when it was above 7 percent. This empirical regularity is not only strong but also statistically significant (Box 2–1 and Chart 2–1). It shows that the NAIRU appears to have been contained between 5 and 7 percent for the period from 1958 to the present.

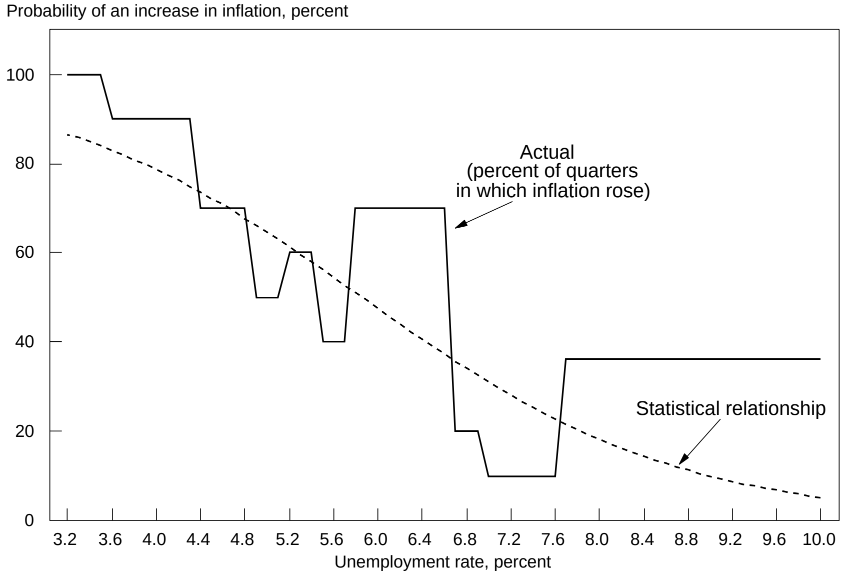
More typically, models of the relationship between unemployment and inflation do not just predict whether inflation will rise or fall, but also give some indication of the likely magnitude of this change. The usual result is that the further the unemployment rate is below the NAIRU, the more inflation tends to rise. In Chart 2–2 the demographically adjusted unemployment rate at the beginning of the year is plotted on the horizontal axis, and the change in core inflation over the course of that year on the vertical axis. The downward-sloping line (the regression line) in the chart depicts

Box 2–1.—Unemployment and Changes in Inflation

Very few economists have empirically tested the NAIRU hypothesis itself: that inflation rises when unemployment is below the NAIRU, and falls when it is above the NAIRU. The advantage of this basic hypothesis over more structured theories is that it is amenable to tests that are nonparametric, that is, that do not require as many assumptions about how the economy functions. These tests are therefore less sensitive to precise specification.

The relationship between the demographically adjusted unemployment rate and the probability of a rise in inflation is shown in Chart 2–1. For a given range of the unemployment rate, the fraction of quarters in which the core CPI inflation rate rose over the following 12 months is shown in the solid line. The dashed line is the best statistical fit for these data, estimated using a procedure called logit. This relationship supports the simple NAIRU hypothesis: when unemployment is low, inflation is more likely to rise. Further, inflation is about as likely to rise as to fall when unemployment is in the middle range of about 5 to 7 percent.

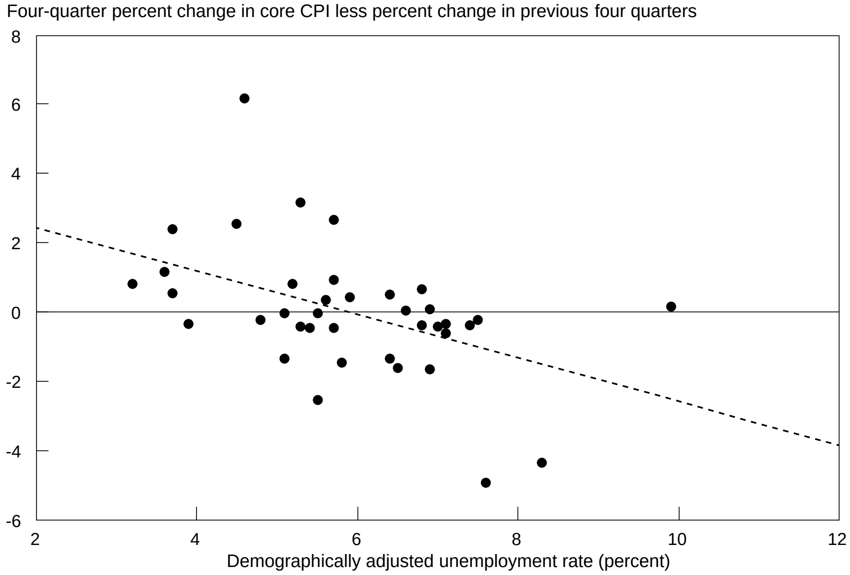
Chart 2-1 **Unemployment and the Probability of Inflation**
At very low unemployment rates, the probability that inflation will increase is high.
But at higher unemployment rates, it becomes more likely that inflation will fall.



Sources: Department of Labor and calculations by Council of Economic Advisers.

the statistical relationship; it shows that increasing the unemployment rate by 1 percentage point lowers the rate of inflation by around 0.6 percentage point.

Chart 2-2 **Changes in Core Inflation and the NAIRU**
Each 1-percentage-point rise in the unemployment rate tends to lower inflation by 0.6 percentage point over the following year.



Note: Unemployment rate adjusted using 1993 labor force weights.
Source: Department of Labor.

Chart 2–2 illustrates by implication another point: other factors besides unemployment also affect inflation. If the unemployment rate were the only factor affecting inflation, all the points would lie exactly on the regression line (assuming also that this is the correct specification). Instead, some points represent periods when unemployment was low but inflation was falling, and others periods when unemployment was high but inflation was rising. These changes would have escaped any forecaster relying on the unemployment rate alone to predict inflation.

Three extensions to the approach embodied in Chart 2–2 are helpful. First, the NAIRU need not be viewed as an unchanging constant, but instead can be thought of as evolving with changes in the economy. We need to understand how it evolves in order to determine the current level of the NAIRU and thus be able to predict future inflation. This issue is explored in the next section. Second, economic slack is a general concept that is unlikely to be perfectly captured by any single measure. Accordingly, it is useful to employ other measures of slack, such as capacity utilization or job vacancy rates, in conjunction with the unemployment rate in explaining and predicting changes in inflation. Third, other factors also affect the inflation rate; these are usually grouped under the collective heading of supply shocks. For example, the only two periods of double-digit inflation since the immediate aftermath of World War II occurred in 1974 and in 1979–81; both coincided with large increases in the price of oil. An analyst focusing exclusively on unemployment would not have predicted the severity of these inflations.

CHANGES IN THE NAIRU

The natural rate hypothesis was originally interpreted as implying a single, unchanging NAIRU. Today, however, it is recognized that the evidence is more consistent with a NAIRU that evolves over time. Accepting this time-varying NAIRU raises a number of questions: is it possible to explain why the NAIRU changed in the past, predict how it might change in the future, and perhaps even identify policies that might influence it?

A few years ago, typical estimates of the NAIRU were in the neighborhood of 6 percent. If the same natural rate prevailed today, the fact that the economy achieved below-6-percent unemployment from September 1994 through the end of 1996 should have increased inflation. To calculate the rough magnitude of the expected increase, assume for the sake of argument that the NAIRU is 6.0 percent and that a year in which the unemployment rate is a percentage point below the NAIRU raises inflation by about ½ percentage point. Then the average unemployment rate of 5.5 percent over the roughly 2-year period from September 1994 to December 1996 should have led to about a ½-percentage-point increase in the inflation rate. Instead, inflation, as measured by the 12-month change in the core CPI, fell from 3.0 percent to 2.6 percent. In contrast to previous experience with unemployment below 6 percent, inflation has fallen rather than risen.

Through 1995 and 1996, inflationary pressures were milder than in previous periods when unemployment was this low—a point discussed in greater detail later in this chapter. Although potentially transitory factors, such as a slowdown in the rise of employee health benefit costs and declining import prices, partly explain why inflation is subdued, the underlying reason is probably that the NAIRU has fallen substantially. The three main forces driving this decline are the changing demographics of the labor force, the delayed alignment of workers' real wage expectations with productivity growth, and increased competition in labor and product markets.

Changing Demographic Structure

Each demographic group can be thought of as having its own natural rate of unemployment: higher for teenagers than for adults, higher for women than for men, and so on. Even if these individual natural rates were constant, the overall NAIRU would change in response to changes in the proportions of these different groups in the labor force. If it is assumed that demographic changes had about the same effect on the NAIRU as they have had on observed unemployment, then about 0.5 percentage point of the decline in the NAIRU since the early 1980s can be attributed to demographic changes. The single most important demographic change is the aging of the baby-boom generation: the United States now has a more mature labor force, with smaller representation of age groups that traditionally have higher unemployment rates.

Productivity Growth and the Wage Aspiration Effect

The second explanation for the decline of the NAIRU can be called the wage aspiration effect. Neither the level nor the rate of change in productivity seems to have any long-run effect on the unemployment rate: the average unemployment rate in different periods has been approximately unchanged despite a century of massive productivity growth and shifts in its trend. Nevertheless, changes in productivity growth can have temporary effects on the natural rate. Workers' demands for increased real wages may depend on past increases, possibly because people get accustomed to a certain rate of increase in their standard of living. But in the long run, real wage growth tracks productivity increases. Thus, after a fall in the productivity growth rate, workers may initially demand wage growth that is faster than increases in productivity can justify. This puts upward pressure on the inflation rate and requires a higher level of unemployment to stabilize the rate of inflation. But this increase in the NAIRU is only temporary, either because the productivity slowdown itself is temporary, or because workers eventually moderate their demands in response to permanently lower productivity growth. Either way, the NAIRU eventually returns to its level before productivity slowed.

This wage aspiration effect raised the NAIRU after productivity slowed beginning in 1973, and its level remained elevated for some time. However, workers have now had time to lower their aspirations for real wage growth to reflect the slower productivity growth, which has helped the NAIRU return to its earlier, lower rate. Altogether, estimates of this effect show it lowering the NAIRU by a meaningful amount since the early 1980s.

Increased Competition: The Changing Structure of Labor and Product Markets

Many of the likely suspects for the remaining decline in the NAIRU fall under the heading of increased competition in product and labor markets. This is partly the consequence of opening of markets at home and abroad through regulatory reform and trade agreements. Although imports meet only a small fraction—around 13 percent—of total demand, the fact that much of the U.S. manufacturing sector faces potential import competition may provide significant wage restraint. Changes in labor market institutions and practices may also have had some salutary effects on inflation, whatever their other impacts. Quantifying these general notions of increased competition and the institutional structure of the labor market is extremely difficult; however, they can plausibly explain much of the decline in the NAIRU that is not accounted for by demography or the wage aspiration effect.

Beneficial Effects of Persistently Low Unemployment

It has been argued that Europe's sustained high level of unemployment has raised the natural rate of unemployment there, in a process called hysteresis. High and sustained unemployment causes the skills of the unemployed to atrophy, limiting their ability to compete for employment. Attempts by the smaller number of employed workers to maintain their wages reinforce this mechanism, also perpetuating high unemployment. The opposite phenomenon may be at work in the U.S. labor market today. With the lower unemployment of the past few years, previously unemployed workers have acquired new skills from on-the-job training. Research has not shown that "reverse" hysteresis has acted to lower the NAIRU in the American economy. But if it has, it means that sustained high unemployment is even more damaging than we thought, because it can raise the NAIRU, and sustained lower unemployment is even more beneficial than we thought, because it can reduce the NAIRU.

Future Evolution of the NAIRU

A number of factors may continue to reduce the NAIRU in the future. Demographic change will probably continue to lower the natural rate of unemployment as the current bulge of workers in the 25- to 54-year-old age bracket moves into the 55-plus age bracket, where the unemployment rate is typically lower. And if hysteresis is operative in the United States, the current spell of low unemployment may help generate a lower NAIRU in the next few years. The other two factors affecting the natural rate are harder to predict, although competition in the economy seems likely to increase with liberalization of international trade and continued regulatory reform.

THE ECONOMIC CONSEQUENCES OF INFLATION

If our growing understanding of the empirical relationship between unemployment and inflation is to inform policy choices—in particular the appropriate stance of macroeconomic policy—it needs to be combined with an analysis of the costs and benefits of inflation and unemployment.

Policies to lower the inflation rate generally cause temporarily higher unemployment. The costs of this unemployment are straightforward: involuntary unemployment imposes substantial hardship on individuals without jobs and represents wasted resources that could be used in production. According to Okun's law, a well-known empirical regularity in economics, every percentage-point reduction in the unemployment rate corresponds to an increase in output relative to potential of about 2 percent. The 2-percentage-point reduction in the unemployment rate since the end of 1992, for instance, corresponds to an increase in annual output of about 4 percent—roughly $300 billion in total, or $3,000 for every American household.

Accounting for the costs imposed by high levels of inflation is less straightforward. Inflation is often described as if it were inherently harmful, but this is misleading. People care about the purchasing power of their wages, not about the price level itself. If, for example, the dollar value of everything doubled—including goods prices, salaries, the money in peoples' pockets, bank accounts, and debt—almost no one would be worse off; everyone could buy just as much as before. This general doubling of nominal prices and account balances in the economy would impose one direct cost: the value of the time, effort, and materials that goes into reprinting catalogs, account statements, menus, and the like to reflect the new prices. These costs are minor, however. Instead the potential damage inflation does is for the most part *indirect*, through its effect on the level and distribution of output. In the example just given, if prices and wages doubled but cash and bank accounts did not, the burst of inflation would redistribute resources away from people who held wealth and would thus be very costly to them, whereas debtors would find themselves better off. Inflation also has complicated links to the level and growth rate of output. Although "costs of inflation" is an acceptable shorthand for these links, it is the consequences of inflation, not inflation itself, that are the real concern.

THE EFFECT OF INFLATION ON OUTPUT

A number of economists argue that the current relatively low rate of inflation has substantial adverse effects and that lowering the inflation rate by approximately 2 percentage points, to achieve a situation in which the cost of living is constant (on average), would bring large benefits. One cost they cite is that taxation of nominal interest income and nominal capital gains distorts saving and investment decisions in an inflationary environment, although in some cases these distortions may offset others elsewhere in the tax system. Other commonly cited costs of inflation, although lower when the level of inflation is lower, would remain significant, in the view of these economists. Whenever *any* inflation exists, people have trouble distinguishing relative price changes from general inflation; inflation thus creates noise in the price system, interfering with its role in allocating resources efficiently. And although higher levels of inflation are associated with greater variability of inflation, even at low levels some risks from its variation exist. The welfare of individuals is lowered, both directly and indirectly, as they take steps to mitigate these risks. These costs may sound small, but some economists argue that they can be quite substantial. More important, even if the gains from eliminating inflation are small for any given year, they can be large when aggregated over time, provided they are permanent.

Although all these costs exist in theory, several studies suggest that, in practice, the benefits of eliminating inflation in a low-inflation country such as the United States are not likely to be large. The argument for zero inflation assumes that the elimination of inefficiencies associated with inflation will raise the level or the growth rate of gross domestic product (GDP), yet studies mostly find a weak link, or none, between the level or the rate of growth of GDP and the level of inflation in low-inflation countries. Because statistical techniques cannot disentangle the many factors that influence growth, however, these studies may have failed to detect small but economically meaningful effects of low inflation. Also, no one doubts that very high inflation rates adversely affect growth.

On the other hand, maintaining price stability might impose its own costs. Some intriguing new research suggests that price stability might lead to a permanent increase in unemployment and a corresponding decrease in the level of GDP. Some evidence suggests, for example, that workers are more resistant to nominal wage cuts than to an equivalent erosion in their real wages due to inflation. If this were the case, then in a moderate-inflation environment, firms could adjust to shocks by letting real wages erode without resorting to layoffs. In a zero-inflation world, layoffs would be more common.

Another potential cost of price stability is that unemployment and output might fluctuate more over the course of the business cycle. At low levels of inflation, policymakers' tools for stabilizing demand would become less effective. For example, zero inflation would preclude using negative real interest rates (i.e., nominal interest rates below the rate of inflation) to stimulate the economy out of recession. Although monetary policy can affect the economy through other channels, including changing the quantity of credit, establishing a floor under real interest rates could make stabilization more difficult.

THE EFFECT OF INFLATION ON THE DISTRIBUTION OF INCOME

The distributional consequences of achieving zero inflation are not widely recognized. The unemployment required to achieve, and possibly even that to maintain, zero inflation would place a disproportionate burden on the less well off. The winners from zero inflation are harder to characterize precisely. The immediate transition to lower inflation would benefit holders of nominal claims and people on fixed incomes (e.g., unindexed pensions) while increasing the burden on debtors. In the long run as the lower inflation becomes built into expectations, interest rates would fall, and it would have no added effects on debtors or creditors. Zero inflation would, however, be a permanent boon to people with large cash holdings—many of whom live abroad or are engaged in illegal activities. In summary, reaching zero inflation might require the less advantaged to take on a disproportionate amount of the burden of achieving benefits whose size and distribution are uncertain.

RISKS IN MACROECONOMIC POLICY

The previous discussion identified the uncertainties associated with estimating the changing level of the NAIRU. There are also other uncertainties facing policymakers. This Administration has a record of forecasting accurately—but conservatively—output, inflation, and unemployment. But no forecast is without uncertainty. The long and variable lags in all policies, from the initial decision through implementation to the realization of the full effects, create uncertainty about what the right policy should be. Not only do we lack precise knowledge about where the economy will be in, say, 6 months' time, when the effects of today's policy decisions may be felt; often it is hard to know with precision where the economy is today. Good policymaking recognizes this uncertainty and weighs carefully the risks of alternative courses of action. An added advantage of the stable macroeconomic environment achieved over the past 4 years is that those risks are far smaller than they would be in a more volatile environment.

The preceding discussion of the NAIRU and analyses in recent *Reports* set the stage for an evaluation of these risks. On the one hand, expansionary policies that lead to unemployment below the NAIRU may result in a slight increase in inflation, with an accompanying risk of higher unemployment later as the economy returns to its lower inflation level. On the other hand, policies that lead to unemployment above the NAIRU result in a decrease in inflation, but also a waste of the economy's productive potential, slower growth, and unnecessary suffering, as workers who are able and willing to work cannot find it. Evaluating the risk of more expansionary policies raises several key issues. How high are the costs of a slight increase in inflation? Does the economy stand at a precipice, such that once inflation increases, it is likely to accelerate quickly? How high is the cost of disinflating should the economy overshoot?

Recent research lends support to those who advocate a cautiously expansionary policy: as the preceding discussion suggested, given the United States' recent history of low and stable inflation, slight increases in inflation do not seem to be associated with large costs. And last year's *Report* indicated that the economy does not stand at a precipice: at least in today's stable environment, runaway inflation is not a threat. Moreover, econometric evidence suggests that the relationship between the level of unemployment and inflation is such that the "extra" cost of disinflating—of wringing out inflation by temporarily increasing unemployment above the NAIRU—is no greater than the increased output resulting from the unintended lowering of unemployment below the NAIRU through cautiously expansionary policies. Moreover, the earlier discussion suggested that, in the current environment of low and stable inflation, the benefits of reducing inflation may be lower and those of reducing unemployment higher than had previously been thought.

THE FINANCIAL CONDITION OF HOUSEHOLDS

As 1996 ended, economic fundamentals appeared quite strong. Almost none of the economic symptoms that often precede a downturn, such as financial imbalances or inflationary pressures, were evident at the end of the year. The exceptions to this positive outlook were potentially worrisome trends in consumer indebtedness, credit card delinquencies, and personal bankruptcies. But upon analysis they do not seem to reflect dangerous financial imbalances or presage banking sector troubles. Indeed, at the beginning of 1997 the overall financial condition of households was sound and the banking system was very healthy.

TRENDS IN CONSUMER CREDIT

The past few years have been marked by a rapid rise in consumer credit (which does not include residential mortgage loans) and a subsequent worsening of some indicators of household financial condition. The runup in consumer credit had slowed considerably by the end of 1996, following more than 2 years of double-digit credit growth. Even in 1996, however, consumer credit appears to have grown faster than disposable income. Reflecting this rise, total required debt-service payments of households (including payments on mortgage debt) have also risen as a share of disposable income.

The largest and fastest-growing type of consumer credit is revolving credit, which consists primarily of credit card accounts (Table 2–1). Banks hold the largest share of consumer credit: almost half of the total outstanding, or about three times the shares held by finance companies and credit unions. Other holders include savings institutions, retailers, and gasoline companies. A large and rapidly rising share of consumer loans is held in securitized pools: loans are packaged by the originator and securities issued against them, which are then sold to investors (Box 2–2).

TABLE 2–1.—*Growth in Consumer Credit Outstanding*

[Percent change; simple annual rates [1]]

Period	Total	Revolving	Automobile	Other	Addendum: Disposable personal income
1993	7.5	11.3	8.8	2.7	3.0
1994	14.5	18.2	13.4	11.8	3.6
1995	14.2	22.0	10.6	9.3	5.5
1996: I	11.9	16.8	8.9	9.0	3.5
II	7.2	12.8	10.2	–2.7	6.7
III	6.9	9.3	9.2	1.4	4.4
October	6.6	3.7	3.2	14.3	.8
November	7.5	8.4	1.6	12.4	6.0
	Level, November 1996 (billions of dollars)				
	1,190.6	460.0	377.7	352.8	[2] 5,690.6

[1] Calculated from published levels.

[2] Annual rate.

Note.—Annual percent changes are for December to December; quarterly, for last month in quarter to last month in quarter. Data are seasonally adjusted.

Sources: Department of Commerce and Board of Governors of the Federal Reserve System.

The rapid growth in consumer debt in recent years reflects both demand and supply factors. On the demand side, the strong economic expansion and the consequent decline in unemployment and rise in consumer confidence are likely to have increased households' willingness to borrow. Borrowing may also have been boosted by the increases in household wealth generated primarily by higher stock prices. Refinancing of residential mortgages has cut household interest burdens, increasing the amount of consumer debt that households can support. At the same time, a desired rebound in spending on durable goods following the 1990–91 recession may well have stimulated the demand for consumer credit.

On the supply side, the recovery of the banking system following the substantial losses and capital pressures of the late 1980s and early 1990s may have encouraged banks to try to increase lending

Box 2–2.—Securitization of Consumer Loans

In recent years lenders have financed an increasing share of consumer loans by selling them to investors in the form of asset-backed securities. These securities allow investors to purchase a claim on the interest and principal payments generated by a pool of consumer loans. The first sales of such securities occurred only in 1985, but by 1996 more than 20 percent of outstanding consumer loans had been securitized and sold. The largest issuers are the finance subsidiaries of automobile manufacturers, credit card banks, and nonbank credit card issuers. The structure of consumer loan-backed securities varies, reflecting the types of loans being securitized and the needs of the seller. The securities are sold to a variety of investors, including insurance companies, pension funds, and mutual funds.

Automobile loans were the first type of consumer loans to be securitized. More recently, however, credit card loans have become the largest class of securitized consumer loan. In large part this shift reflects heavy securitization by banks, virtually all of which represents sales of credit card loans. A recent Federal Reserve survey of senior loan officers at large banks found two main reasons for the increase in securitization: rapid growth in credit card lending had outstripped banks' willingness to hold such loans on their books, and banks had gained experience in arranging securitizations. In addition, the banks pointed to the capital market's greater receptiveness to securitized loans, and the rising costs of carrying loans on their own balance sheets.

Most securities backed by consumer loans have what are known as credit enhancements, which can substantially reduce default risk. These features include third-party guarantees; "set-asides" in which either the lender puts up money at the time of the sale to cover possible losses, or a portion of the interest paid on the securitized loans is accumulated in a fund for the same purpose; and the sale of a subordinated class of securities that are paid only after payments on the senior securities have been made. As a result, the securities generally obtain top ratings from independent rating agencies. When losses on consumer loans were high during and after the 1990–91 recession, these enhancements proved quite robust: none of the securities missed a payment.

by easing their standards and terms. Simultaneously, three other changes may have reduced the apparent risk of consumer lending relative to other types of loans. First, improvements in computerization and credit scoring may have improved banks' ability to measure and manage consumer lending risk. Second, the development of a market for securitized consumer loans, especially credit card loans, allowed banks to shift some of the risk of these loans to security holders. Third, consolidation in the banking industry may have improved the geographical diversification of banks' consumer loans. Reflecting these trends, Federal Reserve surveys of senior loan officers between 1991 and 1995 consistently showed a net increase in willingness to provide consumer installment loans.

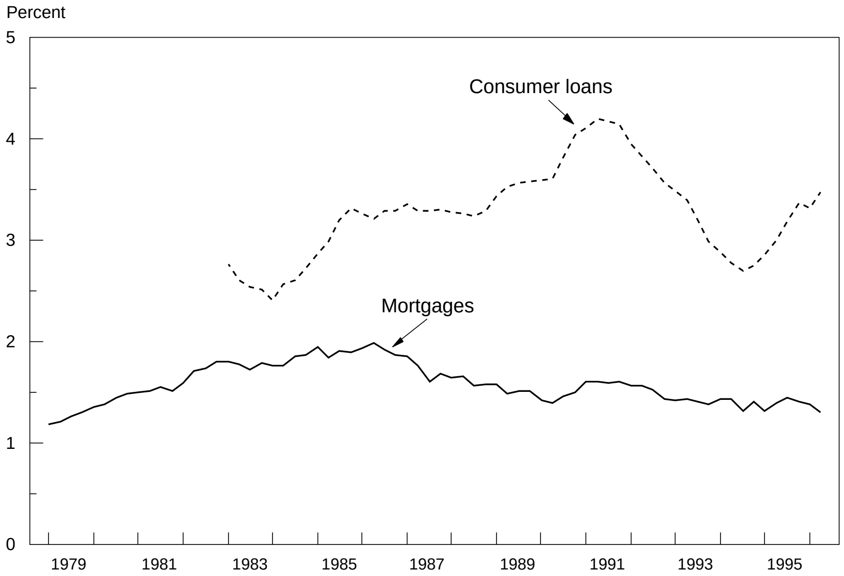
Other supply and demand factors also contributed to the particularly rapid growth in revolving credit. On the household side this rise may reflect, at least in part, increased convenience use of credit cards, as more nontraditional outlets such as grocery stores began accepting credit card payments. This sort of card use also reflects supply-side factors. Card issuers have offered incentives, such as frequent-flyer miles, to cardholders to encourage them to make purchases with their cards. In addition, lenders have aggressively pursued new credit card customers, with extensive promotions including widespread mailings of preapproved applications, and an increased willingness to provide card accounts to riskier customers. Data from the 1995 Survey of Consumer Finances by the Federal Reserve show that the share of lower income households with credit card debt has increased somewhat in recent years. However, the survey also shows that the largest increases in consumer credit use are not among low-income households, but rather among those with incomes of $50,000 to $100,000. The expansion in bank credit card activity, in turn, has been driven by the high profitability of credit card lending.

IMPACT ON HOUSEHOLDS

Measures of consumer loan delinquencies and increased losses on bank consumer loans, as measured by net charge-offs, suggest that at least some households are facing significant financial strains. The rise in the charge-off rate over the past 2 years has brought it back to near its 1991 peak. Consumer loan delinquency rates, however, remain well below their previous peak (Chart 2–3).

But both of these patterns need to be put into proper context. In the case of both delinquencies and charge-offs the recent deterioration has been more dramatic for credit card loans than for other consumer loans. For residential mortgages, the other major type of household loan, delinquency rates have declined recently and are near their lowest level in almost two decades. The number of non-

Chart 2-3 **Delinquency Rates**
In contrast to the rise in consumer loan delinquencies, the mortgage delinquency rate has dropped.



Note: The mortgage delinquency rate is the percentage of all loans 60 days or more past due. The consumer loan delinquency rate is the percentage of loan balances that are 30 days or more past due or nonaccruing.
Sources: Mortgage Bankers Association of America and Board of Governors of the Federal Reserve System.

business bankruptcies, which reached their highest quarterly level ever (more than 290,000) in the third quarter of 1996, represents another possible sign of distress among some households. As discussed in Box 2–3, however, this rise is probably at least partly the result of such factors as changes in bankruptcy law and a number of broader societal changes, which have increased the willingness of households to file for bankruptcy. Nonetheless, the pickup in bankruptcies has surprised many lenders.

One problem in assessing the implications of recent movements in bankruptcies and delinquencies is distinguishing between long-term trends and normal cyclical variations. Normally, as the economy goes into an expansion, bankruptcy and delinquency rates might be expected to decline at first and then rise. Since economic turnarounds are hard to predict, at the beginning of a recovery a large number of firms and households will do better than expected. As a result, delinquency rates will turn out lower than expected. Moreover, the pace of lending increases during recoveries, which may subsequently depress delinquency and loss rates because the new loans are unlikely to become delinquent soon after they are extended. Eventually, however, as banks lower their lending standards in response to their greater optimism about the economy and their own improved financial position, delinquencies and bankruptcies increase.

Box 2–3.—Nonbusiness Bankruptcy: Trends and Causes

The recent rise in nonbusiness bankruptcies is probably the result of changes in bankruptcy law and a number of broader societal changes, in addition to economic conditions. Indeed the trend has been evident for many years. The number of nonbusiness bankruptcy filings was fairly stable between the late 1960s and the late 1970s, but it has grown steadily since from about 200,000 a year in the late 1970s to more than 1 million for the 12 months ending in September 1996.

In recent years about two-thirds of nonbusiness bankruptcies have been filed under Chapter 7 of the U.S. Bankruptcy Code. Under Chapter 7, assets of the petitioner in excess of the State exemption level (if any) are liquidated, and the proceeds are distributed to the creditors. In return, most remaining unsecured debts of the petitioner are "discharged," that is, forgiven. Virtually all other nonbusiness bankruptcies are filed under Chapter 13. Those filing under Chapter 13 are not required to give up any assets but must instead provide a plan under which they will repay a portion of their debts from future income, generally over several years.

Researchers generally attribute much of the increase in bankruptcies since the late 1970s to effects of the Bankruptcy Reform Act of 1978. This act increased the protections available to petitioners and established Federal asset exemption levels that were quite generous compared with State exemption levels. However, the act also allowed States to override the Federal exemption levels, and many did so. The Federal exemption levels were doubled in the Bankruptcy Reform Act of 1994, which may have given further impetus to the rise in bankruptcy filings in 1995 and 1996.

Other economic and social factors may have contributed to the recent rise in bankruptcies. Improvements in the supply of consumer credit likely increased borrowing by households with lower levels of wealth and income, and such households seem more likely than others to file for bankruptcy after a financial shock. Bankruptcies may also have been boosted by a reduction in the social stigma attached to bankruptcy. The increase in the number of divorces may also have contributed. Finally, advertising by lawyers, which became legal in 1977, may have made households more aware of bankruptcy as an option.

As asset quality declines, banks are led to reassess their lending strategies. Recent Federal Reserve surveys have found that about half the banks had tightened their standards for approving new credit card accounts, and a significant share had also tightened some terms on these accounts. About a quarter of the banks reported having tightened lending standards for non-credit card consumer loans. More generally, surveys since the middle of 1996 have indicated that, on balance, banks have become slightly less willing to extend consumer loans.

POSSIBLE EFFECTS ON LENDING INSTITUTIONS AND CONSUMER SPENDING

Increased delinquency rates and loan losses could put the financial position of lending institutions in jeopardy, or they could depress consumer spending and thus adversely affect the economic expansion. Neither outcome appears likely at present.

Today, banks are in sound financial condition. Bank capital and reserve ratios are robust relative to their levels in the mid-1980s, and bank profitability is near record levels. Moreover, despite the rise in delinquency and charge-off rates on consumer loans, overall bank asset quality remains high: measures of business and real estate loan quality are near their best levels in recent years. Finally, credit card loans, which have shown the greatest deterioration, account for only about 5 percent of bank assets. Thus, bank regulators can react in a graduated manner to lending excesses at some banks. Indeed, Federal banking regulators, while continuing to monitor banks' consumer lending activities, have not taken any broad regulatory actions.

Households' spending could be adversely affected by their financial position either directly, because they become unwilling to borrow further to finance continued purchases, especially purchases of consumer durables, or indirectly, because banks become unwilling to lend to them. It seems unlikely that banks will pull back from consumer lending by enough to affect consumer spending on durable goods substantially. Because their condition is healthy, banks can respond to higher losses in a measured way, without drastic reductions in consumer lending. As already noted, the bulk of the loan quality problem appears to be in the credit card sector, where some banks may have eased standards excessively in earlier efforts to gain market share. Nonetheless, profitability among the largest credit card banks, although not as high as it was a few years ago, remains high relative to profits at other banks (Box 2–4).

Banks are also likely to pull back selectively, because rising delinquencies and losses on credit card loans may reflect the behavior of a relatively small group of riskier borrowers who have been able to obtain card accounts in recent years; the fact that other meas-

Box 2–4.—Profitability of Credit Card Operations

The credit card operations of large banks appear to have been far more profitable than other bank activities in recent years. However, competitive pressures and higher loan losses have eroded this difference since the early 1990s.

The profits of the large credit card banks significantly exceeded those of the banking industry as a whole through the late 1980s and early 1990s. In 1993 and 1994, before-tax profits at these banks, which account for about two-thirds of the banking industry's credit card loans outstanding, were roughly 4 percent of outstanding balances. By contrast, banking industry profits, before taxes, were only about 1.7 percent of assets in those 2 years. Since then this large gap has narrowed. Before-tax profits at large credit card banks fell to just 2.7 percent in 1995, and to just 2.1 percent in the first half of 1996. Over the same period, profits for the industry as a whole have increased slightly, to more than 1.8 percent of assets. The relative decline in profits at large credit card banks reflects a rise in loan losses, a reduction in fee income, and narrower interest spreads. Nonetheless, because of rising levels of securitization, returns on assets and equity at these banks remain quite high relative to returns for the industry as a whole.

ures of household financial strength have not deteriorated to the same degree supports this notion. Even the rise in the delinquency rate on non-credit card consumer loans at banks may be an overstatement: these loans include loans for automobiles, the delinquency rate for which may have been boosted in recent years by the shift of many relatively low risk customers to lease financing. Finally, banks may find it difficult to limit credit card lending in the short run, because unused lines of credit are currently more than three times the dollar volume of credit card loans outstanding, and these lines have been growing rapidly.

The high level of indebtedness is also unlikely to affect consumer spending significantly. Indeed, standard theoretical models of consumer spending indicate that indebtedness has no independent effect; consumer spending is determined by income patterns over people's lifetimes. Some research suggests that high levels of indebtedness may have an adverse effect. But in the current situation this effect should be offset by other influences. The ratio of households' net worth to disposable income is as high now as it has been in three decades. Historically, high levels of aggregate net worth relative to disposable income have been associated with high levels of consumer spending. In addition, high levels of consumer confidence should help to bolster consumer spending.

INFLATION-INDEXED SECURITIES

In September 1996 the Treasury announced that it would issue inflation-indexed debt securities starting in early 1997. Inflation-indexed securities provide two main benefits. First, they offer investors an asset that is protected against unexpected inflation. No other financial asset offers the same degree of protection against both credit risk and the risk of inflation. Moreover, financial firms may use indexed securities to provide other assets valued by households, such as indexed annuities. Second, since investors should be willing to accept a lower average yield on securities that provide such a hedge against inflation, a shift from conventional securities to indexed securities of the same maturity is likely to reduce the Treasury's average borrowing costs. Indexed securities offer other benefits as well: the spread that emerges in the market between rates on indexed and on comparable conventional securities will provide better information than is now available about investors' expectations of future inflation, which should prove useful in formulating monetary policy; and indexed securities could reduce the sensitivity of the Federal budget to unexpected fluctuations in real interest rates, by allowing the Treasury to lock in real financing costs over a relatively long horizon.

HOW INFLATION-INDEXED SECURITIES WORK

The first indexed securities issued carry a 10-year maturity. In the future the Treasury will issue indexed securities once each quarter. As with the current 2- and 5-year Treasury notes, the sales are single-price auctions in which all successful bidders receive the same return. Investors can make noncompetitive tenders so that they are assured of receiving securities at the rate determined in the auction. Indexed securities are available in denominations as small as $1,000, to encourage demand from small savers. The securities can also be stripped, that is, the interest component separated from the principal component to suit the needs of different investors for differing income streams. The Treasury expects to issue one other maturity of indexed security within a year. In addition, the Treasury intends to sell, starting in about a year, inflation-protected savings bonds that pay rates based on those on marketable indexed securities. Conventional EE savings bonds, which are not indexed, will continue to be available.

The principal of indexed Treasury securities is protected from inflation because its value is adjusted periodically (indexed) in line with changes in the consumer price index. The version of the CPI used for these calculations is the CPI for all items for urban consumers (CPI-U), without seasonal adjustment. Investors will receive semiannual interest (coupon) payments based on the indexed value of the principal. At maturity the indexed value of the principal or the par value, whichever is larger, is repaid. Because the coupon payments are based on the inflation-adjusted principal, both they and the principal of indexed securities are protected against increases in the general price level. The fact that the value of the principal can increase before it is repaid raises special issues of tax treatment, which are discussed in Box 2–5.

Box 2–5.—Tax Treatment of Indexed Securities

Before the first indexed securities were issued, the Internal Revenue Service proposed regulations on their tax treatment. Interest payments on indexed securities will be taxable as current income, as are those on conventional Treasury securities. However, increases in the inflation-indexed principal will also be taxable as interest income. If the CPI-U declines, the resulting reduction in the indexed principal may be used (subject to some limitations) to offset taxation of interest payments on the indexed securities.

Because holders of indexed securities receive the increase in the inflation-indexed principal only at maturity, in periods of high inflation the income tax they owe on the interest plus that on the increase in principal could exceed the interest payment received. The inflation rate at which this occurs depends on the interest rate on the indexed securities and the investor's marginal tax rate. With a real interest rate of 3 percent on indexed securities, for a taxpayer in the 28 percent tax bracket, taxes will exceed interest received if inflation exceeds about 8 percent. Investors in this position could cover the tax payment by selling a portion of their indexed securities. Holders of conventional Treasuries do not face this problem because inflation automatically reduces the real value of their principal.

Of course, many households will invest in indexed securities through tax-deferred accounts such as individual retirement accounts and 401(k) plans. For these investors the tax treatment of indexed securities will generally be immaterial unless they make a taxable early withdrawal. Similarly, holders of inflation-indexed savings bonds (as opposed to marketable indexed securities) will not pay taxes on interest received until maturity.

BENEFITS OF INDEXED SECURITIES

Indexed securities provide households with a savings vehicle that automatically adjusts to compensate for the effects of inflation. History suggests that the returns on most assets do not fully reflect changes in the inflation rate. Among financial assets, Treasury bills have provided the best protection against inflation (Table 2–2). Stocks and long-term government bonds have not provided such protection. Investments in new homes, and to an even greater degree in existing homes, have provided protection against inflation, but real estate investments are not liquid. Thus, families looking for a flexible and low-cost way to save for future expenditures such as retirement or a child's education should find inflation-indexed securities a valuable new option (Box 2–6). The availability of indexed Treasury securities may also allow private firms to develop other desirable financial instruments, such as inflation-indexed mutual funds and annuities, or to hedge pension liabilities. Indeed, at least one mutual fund manager has already filed with the Securities and Exchange Commission to offer a mutual fund investing primarily in indexed securities.

TABLE 2–2.—*Average Increase in Rate of Return When Inflation Rises by 1 Percentage Point*

[Percentage points; annualized]

Item	Holding period		
	3 months	1 year	5 years
Financial assets:			
Equities	–1.74	–1.34	–0.54
Long–term government bonds	–.97	–.79	–.11
Treasury bills	.53	.65	.69
Nonfinancial assets:			
New homes (median sales price)	.17	.26	.80
Existing homes (median sales price)	.95	.78	1.16

Note.—Data shown are the slope coefficients on the inflation rate taken from regressions of each rate of return on a constant and CPI inflation over the corresponding holding period.

Returns on financial assets are from Ibbotson Associates; equity returns are for the S&P 500 index.

Data for financial assets begin in 1955; for new home prices, in 1963; and for existing home prices, in 1968.

Sources: Council of Economic Advisers, based on data from Ibbotson Associates, National Association of Realtors, Department of Commerce, and Department of Labor.

Much of the attention surrounding the introduction of indexed securities has focused on their likely impact on households, but indexed securities also raise two important issues for the Treasury. First, many economists believe that the Treasury now pays an inflation risk premium on its intermediate- and long-term conventional securities. In other words, investors require a higher interest rate on these securities to compensate them for the possibility that higher-than-expected inflation will erode the real value of future interest payments and principal repayments received on the security. One recent study concluded that investor concerns about inflation risk might add as much as ½ to 1 percentage point to the required yield on some Treasury securities. Thus, by issuing indexed securities, the Treasury may be able to reduce average borrowing costs.

Box 2–6.—How Indexed Securities Reduce Inflation Risk

The table below illustrates how indexed bonds can reduce the risk of meeting a future expenditure. In this case the expense is the cost of a year of college for a child who is 8 years old today and will be attending college in 10 years. If the cost of a year of college rises at the same rate as the CPI, an indexed security guarantees the parents enough money to cover that cost, no matter how high the inflation rate in the intervening years.

Note that although the indexed security reduces risk, it may underperform the conventional security. In the example shown, if inflation turns out to be only 1 percent, the holder of the conventional security will end up with a larger net return than the holder of the indexed security. However, if inflation turns out to be 5 percent, the holder of the conventional security will end up with a smaller net return and will be unable to meet the cost of college with the security and its accumulated interest.

Savings Outcomes After 10 Years Under Different Inflation Assumptions

[Initial investment of $10,000; expected inflation of 3 percent]

If inflation turns out to be:	Conventional bond (Subject to inflation risk)		Indexed bond (Not subject to inflation risk)	
1 percent	Investment outcome:	$18,771	Investment outcome:	$14,845
	College cost:	14,728	College cost:	14,728
	Net:	4,043	Net:	117
5 percent	Investment outcome:	$18,771	Investment outcome:	$21,891
	College cost:	21,718	College cost:	21,718
	Net:	–2,947	Net:	173

Note: Real rate of return of 3 percent on indexed bond; nominal rate of return of 6.5 percent on conventional bond (3 percent real rate of return plus 0.5 percent inflation risk premium plus 3 percent expected inflation); current college cost of $13,333, assumed to grow at the same rate as the CPI; returns are assumed to accumulate tax free.

Source: Council of Economic Advisers calculations.

The second issue for the Treasury is the effect of the indexed securities on the riskiness of Treasury payments: indexed securities increase the risk to the Treasury of having to meet high interest payments if inflation is high. This uncertainty, however, is about the nominal payments that the Treasury will make; indexed securities actually reduce uncertainty about the *real* value of those payments. Fixed real payments on at least a portion of the Treasury's debt may be desirable, since an increase in inflation would increase nominal interest costs but would also be expected to increase nominal GDP and thus tax revenues. This effect of indexed securities on payments made by the Treasury can be seen in the example of household savings in Box 2–6. Since indexed securities provide for less variation in the real value of the household's savings, they must also provide for less variation in the real value of payments by the Treasury. Thus, indexed securities reduce real uncertainty not only for investors, but also for the Treasury.

Indexed securities may also have implications for monetary policy. Some economists have worried that substantial issuance of indexed securities could reduce the political pressure on the Federal Reserve to keep inflation low, because holders of Treasury securities would become, as a group, less anxious about inflation. On the other hand, indexed securities may increase the government's incentive to fight inflation, because it would not be possible to inflate away the value of inflation-indexed debt.

Whatever the effect on incentives, indexed securities could also provide the Federal Reserve with useful information about real interest rates and investors' expectations of future inflation rates. At present this information can only be inferred from nominal interest rates and survey data on expected inflation. Once a substantial market for indexed securities has developed, policymakers will be able to decompose interest rates for a given maturity into real and inflation-related components. Changes over time in these components may provide useful insights into the working of the economy that can be used in formulating monetary policy.

EXPERIENCE IN OTHER COUNTRIES

A number of other countries already issue indexed securities. The largest issuer is the United Kingdom, which began issuing nonmarketable indexed securities in the mid-1970s and marketable ones in 1981. Currently, indexed securities account for about $60 billion of U.K. marketable debt, about a sixth of the total. The indexed security market in Israel accounts for more than 85 percent of that country's marketable debt, probably because past periods of very high inflation there have made indexed securities more attractive. Australia issued indexed securities as early as 1985, as did Canada, New Zealand, and Sweden, starting in the 1990s. In these countries the share of debt that is indexed remains well below that in the United Kingdom.

Because the issuance of indexed securities in countries with financial systems similar to ours is so recent, one cannot yet use these experiences to evaluate the likely impact of indexed securities in the United States. The relative real returns on conventional and indexed securities (and therefore the relative real payments by the government) depend on the happenstance of inflation, especially unexpected inflation, following the issuance of the securities. As a result, relatively long periods are needed to evaluate their relative returns with any confidence.

Finally, the experience in other countries does suggest that the market for indexed securities may be relatively illiquid. In the United Kingdom, where the indexed security market is largest, indexed securities are traded much less often than conventional securities. Purchasers, who are often pension funds and insurance companies, apparently buy these securities to hold in their portfolios rather than trade them. This pattern suggests that indexed securities satisfy a real need in the market, but the reduced liquidity might raise the return demanded by investors concerned about their ability to sell the securities on short notice at reasonable cost. This "liquidity premium" may offset to some degree the elimination of the inflation risk premium, at least until the new market becomes well established.

MEASUREMENT ISSUES

The quality of economic statistics affects the assessment of economic performance and the formulation of economic policy. The issues of possible bias in the measurement of consumer price inflation and the difference between income- and product-side measures of national output provide two important illustrations.

THE CONSUMER PRICE INDEX

Many researchers have argued that the CPI overstates increases in the cost of living. Much of this research comes from the Bureau of Labor Statistics (BLS), which produces the CPI. This research has identified several possible sources of bias; the degree of consensus on the importance of each varies.

Substitution Bias

The CPI prices a fixed market basket of commodities. Shares of these commodities in the basket are based on spending patterns observed in a base period. But consumers do not buy the same basket of goods from year to year. When the prices of some goods rise more quickly than those of other goods, consumers often substitute away from those that have become relatively expensive and toward others that have become relatively cheap. Increases in the CPI measure how much additional income a typical consumer would need to buy the base-period market basket at the new prices. In contrast, a true cost-of-living index would measure how much more income a consumer needs to maintain the same level of economic well-being, taking into account the ability to substitute among goods. By ignoring substitution, the CPI overstates increases in the cost of living.

Substitution bias takes place at two levels, given the way the CPI is constructed. At the "upper" level, substitution occurs among the basic categories that make up the CPI's market basket—for example, when consumers switch from apples to oranges (2 of the 207 categories). But these 207 categories are themselves made up of numerous individual items. For example, the apples category consists of a sample of Delicious, Granny Smith, Macintosh, and other varieties. Thus a second, "lower" level of substitution takes place within categories when the price of, say, Delicious apples rises and consumers shift to other varieties.

The market basket is divided into categories, and each category's weight is determined by its share in total consumption as measured by the Consumer Expenditure Survey. (Data for this survey are collected by the Bureau of the Census under contract with the BLS.) The current categorization is based on 1982–84 data; an updated categorization based on 1993–95 data will go into effect in 1998. The category weights are fixed for approximately 10 years. Within categories, the component weights are updated every 5 years on a rolling basis.

Certain other price indexes, called superlative indexes, take into account consumers' ability to substitute, and hence are not subject to substitution bias. Unlike fixed-weight indexes, superlative indexes use information about consumer purchases, both at the beginning and at the end of the period over which inflation is measured. Using a superlative index to aggregate the 207 expenditure categories, BLS researchers calculated that, on average, annual inflation was 0.14 percentage point per year lower than the change in the official CPI from 1988 to 1995.

Replacement of the CPI with a superlative index might seem an easy fix. But these indexes cannot be constructed in a timely fashion because the required data on spending patterns are compiled almost a year after the corresponding price data. Users would have to accommodate themselves to the inevitable lag or else accept a provisional forecast, to be revised when complete data became available. In contrast, one of the strengths of the current CPI is that it is up-to-date and virtually never revised. Because price indexes are used for several purposes, such as macroeconomic management, adjusting tax brackets, and Social Security payments, it may be desirable to have more than one index: a timely one that is sufficiently accurate for macroeconomic management, and a more accurate but less timely one for other purposes.

Substitution bias within categories is parallel to bias between categories: the current procedure for combining the price increases of individual items in a category is appropriate only if consumers do not make substitutions. Unfortunately, superlative indexes can be used neither to estimate the magnitude of the bias within categories, nor to redress it, because the necessary data on spending patterns are not available at the level of individual items. Instead, researchers have estimated this bias by comparing a geometric index with the fixed-market-basket index, on the grounds that a geometric index approximates a cost-of-living index if goods are moderately substitutable. (A geometric index, like a fixed-market-basket index, requires only beginning-of-period expenditure shares.) The BLS has estimated that a geometric index measures about 0.25 percentage point per year less inflation than the CPI does at the within-category level.

It is open to debate whether all or only part of this 0.25-percentage-point difference reflects actual substitution patterns, because the conditions under which a geometric index actually approximates a cost-of-living index may not hold. These conditions are likely to apply to the more narrow categories in the CPI, such as apples and oranges, where consumers can easily shift their purchases. However, they may not hold for broad categories such as prescription drugs, where purchases are based on doctor's orders and are little affected by prices. A similar problem occurs in categories like "toys, hobbies, and music equipment," which includes dolls, stamps, guitar picks, and grand pianos—items so different that they cannot plausibly substitute for one another. Another obstacle to substitution occurs where goods are normally used together—such as washers and dryers in the laundry equipment category or carburetors and air filters in the "other automobile parts and equipment" category. For these categories the fixed-market-basket index may only slightly overstate inflation and thus come closer to the truth than the geometric mean.

Even for the narrow categories, the bias from using a fixed market basket may be limited. Within these categories (such as between two varieties of apples) commodities may be highly substitutable. But some evidence suggests that for these categories relative price changes are small.

Quality Adjustment

Measuring inflation properly requires distinguishing between changes in the underlying price and changes in quality. The BLS measures quality changes when it can. Some are easy to measure, for example when bakers double the size of their chocolate chip cookies. Others are more difficult but straightforward: for example, optional automobile equipment that later becomes standard, such as air bags or antilock brakes, can be quality-adjusted by its price when it was sold as an option. Quality adjustments generally have a significant effect on price increases as measured by the CPI. For example, the BLS estimates that in 1995 quality adjustment reduced the increase in the CPI by 2 percentage points compared with what it would have been based on listed prices.

The BLS does not adjust for other, more difficult problems because the agency cannot make direct quality adjustments in the absence of quantifiable data. For example, televisions are less likely to need repair than they were a decade ago, and some surgical procedures are more likely to be successful today than in the past. But repair rates for televisions and success rates for surgery cannot be computed until years after the purchase. Several studies on quality adjustment are available; most suggest that BLS methods fail to capture a wide range of quality changes. However, these studies focus on a relatively few categories of the CPI—possibly those where the quality bias is presumed largest—making it difficult to assess the magnitude of the overall quality bias in the CPI.

New Products

New products, such as air conditioners in the 1950s or videocassette recorders in the 1980s, usually decline sharply in price during the first years they are available for sale. But these products are not usually included in the CPI basket until years after their introduction, and so the CPI never records their initial price declines.

Outlet Substitution

Over time, consumers may change their shopping patterns, shifting from high-priced to low-priced outlets, where the quality of service is often lower. Current methods assume that all of the difference in price between high- and low-priced outlets reflects differences in the quality of service. To the extent this assumption is not appropriate, current methods overlook one source of price decline.

To sum up, recent research has identified several possible sources of bias in the CPI. A commission appointed by the Senate Finance Committee recently reported on these sources of bias (Box 2–7). The magnitudes of some of these biases are based on hard estimates around which there is broad agreement. On the magnitudes of other biases, however, consensus has yet to emerge.

Implications of CPI Bias for Other Economic Statistics

The CPI is used as an input for calculating many other economic statistics, and therefore the potential biases in its measurement have consequences beyond our view of inflation. The accuracy of many economic measures is critically dependent on how well we measure price changes. Most of the individual consumption items used in calculating real GDP are deflated by component-level price indexes from the CPI. Most of the biases in the CPI result in an overdeflation of GDP, biasing real output growth downward. (Between-category substitution, however, is handled properly in the national income and product accounts.) Productivity is also calculated from real GDP, so overestimates of CPI inflation would lead us to underestimate productivity growth. The accuracy of many other statistics, such as real median household income and

Box 2–7.—Estimates and Recommendations of the Advisory Commission to Study the Consumer Price Index

An advisory commission appointed by the Senate Finance Committee has estimated that the current CPI overstates inflation by 1.1 percentage points per year. Their estimate of bias is the sum of the following parts:

Source of bias	Estimate of bias (percentage points)
Substitution	
Upper level (between-category)	0.15
Lower level (within-category)	.25
New products and quality change	.60
Switching to new outlets	.10
Total	1.1
Plausible range	.8–1.6

The commission made several recommendations based on its findings. It proposed that the BLS establish a cost-of-living index as its objective in measuring consumer prices. It recommended that the BLS develop two indexes: one to be published monthly and the other annually, with historical revision to the annual index. The annual measure should use a superlative index for aggregation at the between-category level and a geometric index at the within-category level. The monthly index would be called the CPI and should move toward geometric weighting at both levels, with the weights kept as up to date as possible.

The commission also recommended that the Congress provide additional resources to expand the surveys upon which the CPI is based. It further advised that the President and the Congress should reevaluate the indexing provisions in various Federal programs and features of the tax code in light of the commission's estimated bias in the CPI.

real earnings, that are directly converted from nominal values by the CPI would also be affected.

Although removing CPI bias would change some of the details of our views of productivity and income trends, it would not radically alter our views on such fundamental issues as the productivity slowdown that began around 1973 or the increase in income inequality over the past two decades. Although bias in the CPI would mean that real growth and productivity have been higher recently than official measures indicate, that bias would also apply to longer term measures of growth and productivity. To explain away the decrease in productivity growth, the CPI would have to be not merely biased but *increasingly* biased over time. It is certainly plausible that the increased share of the service sector in the economy has made it harder to measure quality, with the consequence that the approximately 2-percentage-point estimate of the slowdown in productivity overestimates the true reduction. Yet it would require an implausibly large increase in CPI bias to explain away the entire slowdown as an artifact of mismeasurement.

Similarly, CPI bias might be depressing measures of real wages, but that does not change the fact that real wages today are growing more slowly than in the 1950s and 1960s. Also, the increase in income inequality described in Chapter 5 is one widely discussed phenomenon that is completely unaffected by CPI measurement: inequality is measured by comparing income between groups; converting to real values is irrelevant, and in any case any bias in the deflator would affect all of the groups equally.

INCOME- AND PRODUCT-SIDE MEASURES OF OUTPUT

Another measurement issue that has a large effect on our assessment of the economy is the difference between two key measures of national output: gross domestic product and gross domestic income. The size of the economy can be measured by adding up either all the output produced (GDP) or all the income generated in producing that output (GDI). In theory these measures should yield the same result, but in practice they differ because of measurement error; this difference is called the statistical discrepancy. Over eight consecutive recent quarters, for example, measured real GDI grew faster than measured real GDP: 3.1 percent versus 2.1 percent at an annual rate from the third quarter of 1994 to the third quarter of 1996.

Which Is More Accurate?

Measurement problems exist on both sides of the accounts. A significant share of the published national income and product accounts estimates consist of extrapolations based on various indicators and trends until the full annual revision, when most of these projections are replaced with more complete and consistent source data. The latest year to have passed through the usual annual revision process is 1994.

The major problem on the output side is the measurement of services consumption, where about 30 percent of reported output is based on projections until the annual revision, and State and local purchases, where the figure is about 25 percent. The measurement problems in services consumption may be getting worse, as sales in such new and rapidly growing areas as casino gambling, cellular telephone service, and on-line services are not fully measured.

On the income side, estimates of several components of nonwage income, especially proprietors' income, are on shaky ground. Unlike the projections on the product side, which are for the most part replaced with more complete source data during the annual revision, the income projections are replaced only with a very long lag or, in some cases, never. For example, the problems with proprietors' income may persist, as such income is chronically underreported, and the correction for underreporting is based on an out-of-date (1988) taxpayer compliance study that has been discontinued.

In several ways the recent behavior of the economy is more consistent with the strength shown on the income side. Several economic relationships are currently misbehaving. Although the errors in each of these relationships are within their historical ranges, together they add up to a suspicion that the product-side measure of GDP is understating real growth:

- According to Okun's law, the unemployment rate is stable when GDP is growing at its potential rate, and falls when GDP is growing faster than its potential. Through the middle of 1994, potential output appeared to be growing a bit over 2 percent per year. Thus the 2.1 percent per year growth between the third quarter of 1994 and the third quarter of 1996 should have resulted in a stable unemployment rate. Instead, the unemployment rate dropped almost 0.4 percentage point per year. The drop in the unemployment rate is, however, perfectly consistent with the growth rate of real GDI over these 2 years (3.1 percent).
- Personal income tax payments in 1996 for the 1995 tax year were far higher than expected by the Treasury or the Congressional Budget Office, yet these estimates were calibrated to the relatively high income-side estimates—suggesting that even more income may have been generated than the official estimates of the Bureau of Economic Analysis indicate.
- The real product wage (hourly compensation deflated by the prices received by producers) usually rises at the same rate as labor productivity growth. But over the last 2 years the real product wage has grown at a 1.8 percent annual rate—much faster than the official measure of productivity, which has grown at only a 0.3 percent annual rate. However, income-side productivity (discussed below) has grown at a more compatible 1.6 percent annual rate over this period.

Implications for Recent Productivity Growth

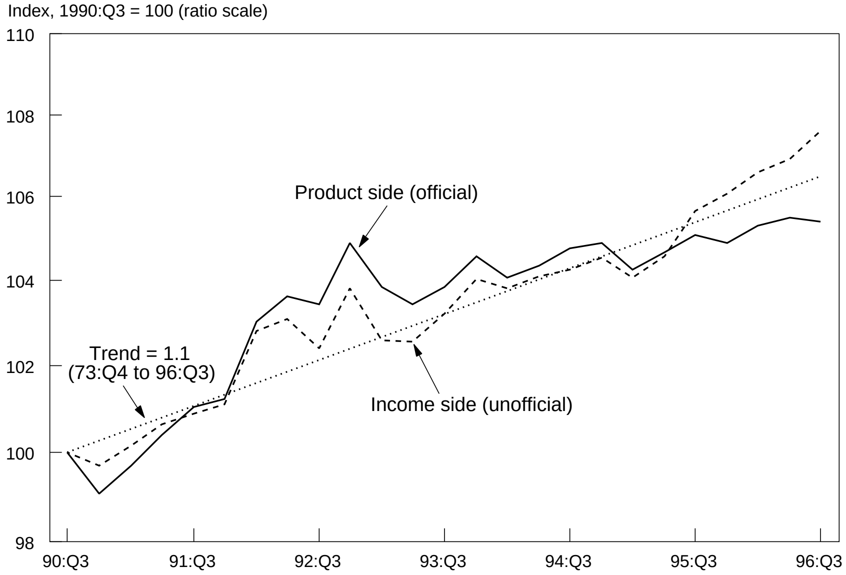
Nonfarm business productivity can be measured using either an income- or a product-side measure of real output. The BLS formerly measured productivity on the income side (except for the advance estimate). Then, in February 1996, the agency changed to a product-side measure, in part to minimize revisions between their advance and their final estimates.

The recent difference between the two measures of productivity growth is dramatic. According to the official (product-side) measure, productivity growth has slowed to only a 0.3 percent annual rate over the past 2 years. In contrast, the income-side measure shows a 1.6 percent annual rate of growth over the same period. Similarly, over the 6 years since the last business-cycle peak, productivity has grown at a 0.9 percent annual rate by the official measure but at a 1.2 percent annual rate on the income-side measure.

The difference between the income- and the product-side measures of output obscures our view of recent productivity growth. The best guess is that productivity has been trending upward at about a 1.1 percent annual rate during the current business cycle. This rate is no different from that measured over the entire post–1973 period (Chart 2–4).

Chart 2-4 **Alternative Measures of Productivity**

Growth in the official measure of nonfarm productivity has been below trend recently, but growth in the income-side measure has been above trend.



Sources: Department of Labor, Department of Commerce, and Council of Economic Advisers.

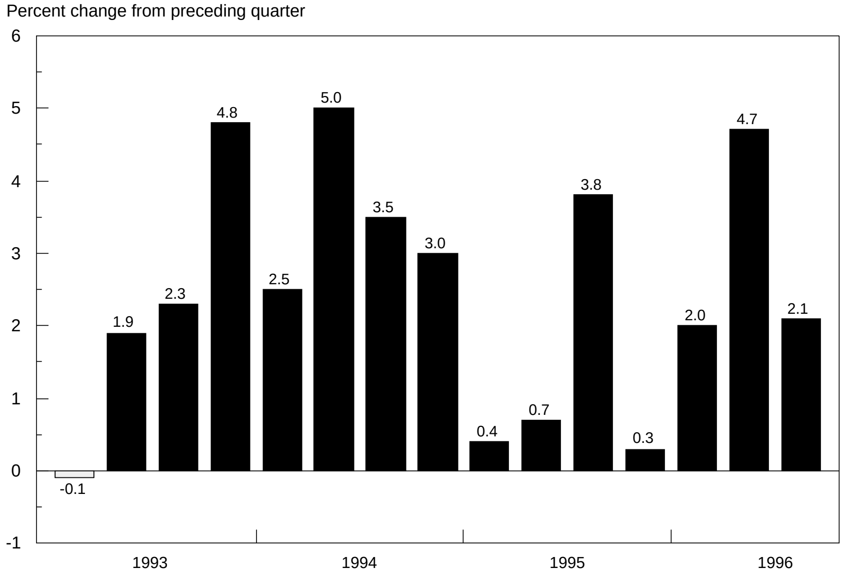
REVIEW AND OUTLOOK

OVERVIEW OF 1996

Economic growth exceeded expectations in 1996. In February 1996 the Administration had forecast that real GDP would grow 2.2 percent over the four quarters of 1996. This forecast was in line with private forecasts at the time. As growth picked up in the first half, that forecast was revised upward to 2.6 percent in July 1996. The consensus of private forecasters now indicates that real GDP expanded 2.8 percent in 1996.

Growth over the last several quarters has been solid, but has fluctuated. Chart 2–5 shows that real growth was weak in the fourth quarter of 1995 and recovered slightly in the first quarter of 1996. Several transitory factors account for that sluggishness: the dispute between the President and the Congress over the budget, which led to two partial Federal Government shutdowns in the fall of 1995 and the following winter; unusually severe weather in January; and a March strike at a major automobile manufacturer. Much of the strong growth in the second quarter of 1996 was directly traceable to the rebound from these factors. Growth moderated in the third quarter to a 2.1 percent annual rate. However, as discussed above, the product- and income-side measures of output diverged: whereas real GDP was estimated to have increased at only a 2.1 percent annual rate in the third quarter, real GDI grew at a 4.2 percent annual rate. Estimates of fourth-quarter GDP are unavailable as this *Report* goes to press, but other data indicate that growth was robust.

Chart 2-5 **Growth in Real GDP**
Despite some fluctuations from quarter to quarter, growth has been solid.

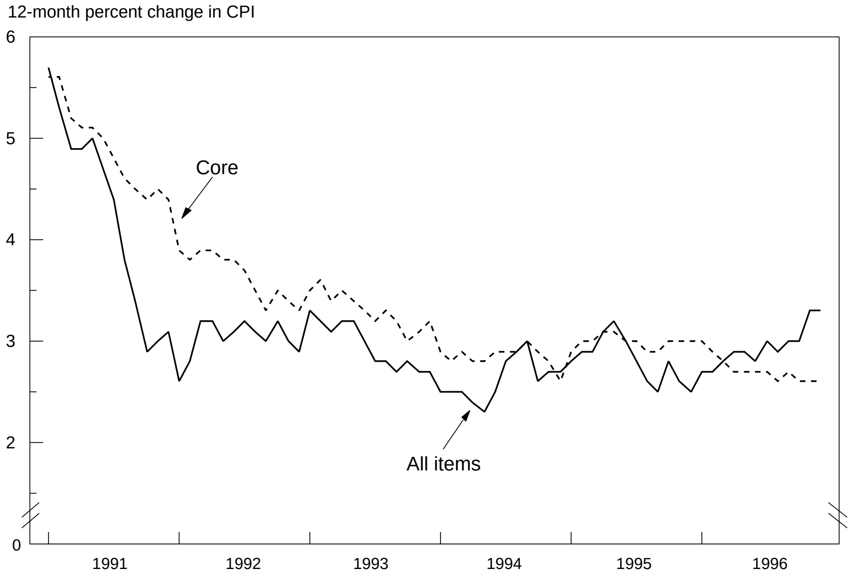


Note: Changes are at annual rates.
Source: Department of Commerce.

After holding fast at around 5.6 percent for all of 1995, the unemployment rate edged down about 0.3 percentage point over the 12 months of 1996. As measured by the *Current Employment Statistics* survey of the BLS, nonfarm employment grew at a brisk pace of 240,000 per month during the first 8 months of the year. But reflecting the deceleration in output in the second half, employment growth moderated to 162,000 per month over the last 4 months of 1996. Since January 1993, payroll employment has increased by 11.2 million.

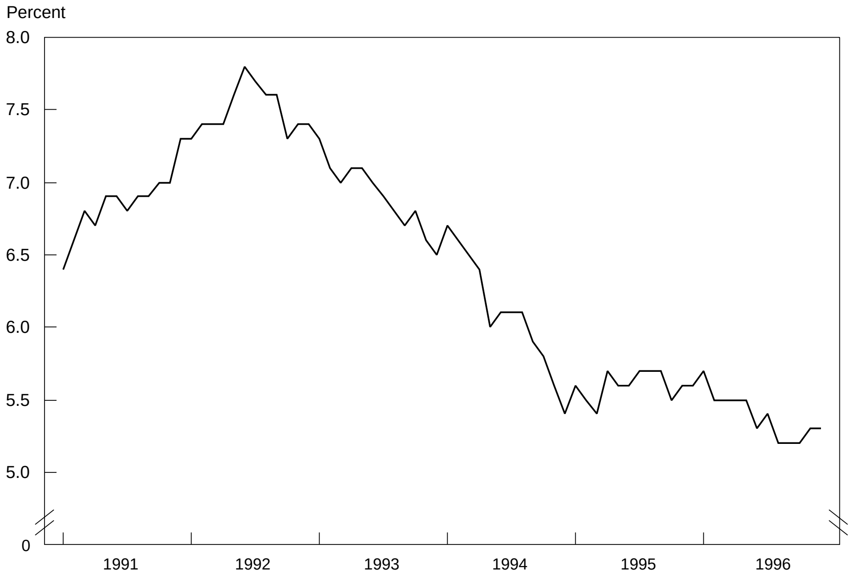
Inflation, as measured by the 12-month change in the CPI, rose in 1996 (Chart 2–6). All of the increase, however, was attributable to the acceleration in food and energy prices. An acceleration in these prices was anticipated in the Administration's forecast. The core CPI, which excludes these volatile components, moved down 0.4 percentage point from its year-earlier pace to 2.6 percent for the 12 months ending in December 1996. This deceleration was somewhat surprising given the decline in the unemployment rate (Chart 2–7) and the strong growth over the first half of the year. But as the earlier discussion of the NAIRU showed, the ability of the economy to sustain low unemployment and low inflation is the best it has been in years.

Chart 2-6 **Consumer Price Inflation**
Excluding the volatile food and energy components, consumer price inflation edged lower in 1996.



Source: Department of Labor.

Chart 2-7 **Civilian Unemployment Rate**
Unemployment fell below 5.5 percent in the first half of 1996 and remained low.



Source: Department of Labor.

Solid growth was achieved in 1996 despite a fiscal policy that has been very restrictive. The standardized-employment deficit (that which would result if the economy were at full employment) as a share of potential nominal GDP has fallen in each of the past 4 years, for a cumulative total of 2.1 percent of potential GDP. As a result, the Federal budget deficit in the 1996 fiscal year fell to only 1.4 percent of actual GDP on a unified-budget basis. Both the President and the Congress are committed to eliminating the deficit; hence fiscal policy should continue to tighten in the intermediate term. In 1997, however, the standardized-employment deficit as a share of potential GDP is expected to rise slightly from 1996.

With inflation contained and the economy expanding at a sustainable pace, the Federal Reserve kept the Federal funds rate flat after lowering it in January 1996. Over the course of the year, long-term interest rates ebbed and flowed with the pace of economic activity, rising from early in the year through the summer, declining in the fall, and then rising again toward the end of the year.

Private Domestic Spending

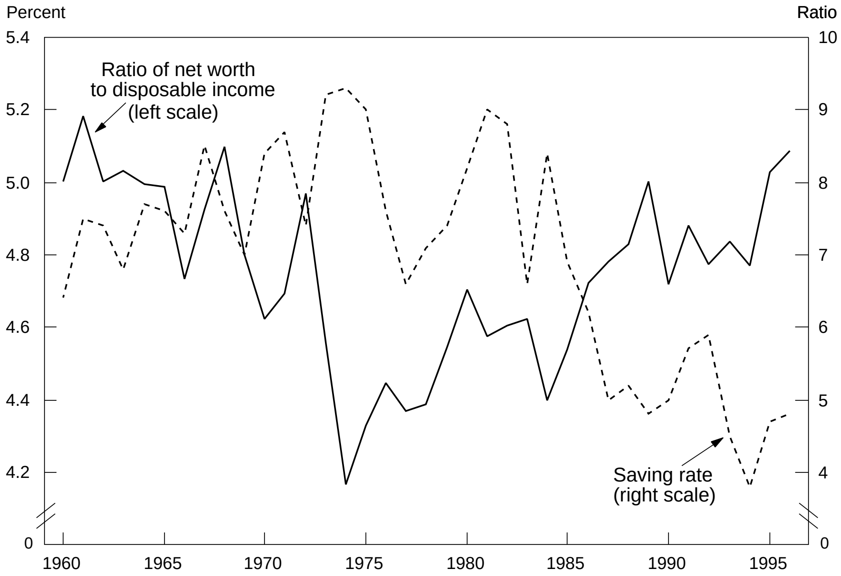
Consumption expenditures grew at a 3.4 percent annual rate in the first half of 1996, with growth concentrated in durable goods, which expanded at nearly a 10 percent pace. Purchases of new automobiles grew rapidly in the first quarter, and expenditures on other durable goods also picked up substantially in the first half. Spending on durables was probably stimulated not only by lower interest rates, but also by the rise in household wealth due in part to the very substantial increase in stock prices. The high level of mortgage refinancing activity last winter may also have contributed to the pickup by reducing households' mortgage payments.

Consumer spending growth slowed substantially in the third quarter. Again the effect was most dramatic for consumer durable goods, partly reflecting the effects of higher intermediate- and long-term interest rates. In addition, higher debt burdens and rising delinquency rates on consumer loans may have led some households to limit spending and some banks to tighten lending standards. However, the discussion of the financial condition of households earlier in this chapter suggests that concerns about consumer distress may have been exaggerated. Consumer fundamentals remain positive: consumer confidence is high, income growth is healthy (real disposable personal income expanded at a better than 3 percent rate over the four quarters ending in the third quarter of 1996), and the growth in household liabilities has been offset by rapid growth of assets. Moreover, as Chart 2–8 shows, the saving rate tends to be low when the ratio of net worth to income is high—at least over long periods; this ratio is at its highest level since 1969. Thus, it is likely that the third-quarter slowdown in consumption will prove largely temporary. Indeed, advance retail sales for the fourth quarter indicate a pickup.

The general soundness of the household sector is affirmed by the market for new homes. Residential investment expanded rapidly through the first half of 1996 despite harsh winter weather early in the year and rising long-term interest rates through the late winter and spring. In part, the effect of higher rates may have been offset by a substantial shift of purchasers to adjustable-rate mortgages, which offer considerable upfront savings. Moreover, despite the rise in rates, measures of housing affordability were the highest they have been since the 1970s. Residential investment did fall in the third quarter, perhaps reflecting the continued rise in interest rates over the summer. However, residential construction appears to have rebounded in the fourth quarter: new home sales were well maintained through November, and inventories of unsold new homes were low relative to sales. Long-term interest rates declined in the fall, with the rate on conventional mortgages retracing about half of its rise earlier in the year. Housing starts, after declining in September and October, increased sharply in November, although they fell back again in December.

As it has been over most of the expansion, private fixed investment was a bright spot in 1996. Investment in producers' durable equipment was particularly robust, growing at a better than 13

Chart 2-8 **Wealth and Saving**
The saving rate tends to fall when the ratio of net worth to income rises, but 1995 and 1996 did not conform to this pattern.



Note: Data for 1996 are for third quarter; household net worth estimated by Council of Economic Advisers.
Sources: Department of Commerce and Board of Governors of the Federal Reserve System (unpublished data).

percent annual rate through the third quarter, with computer investment especially strong. In part this strength is likely to have reflected firms' efforts to upgrade their equipment in a period of increasing demand, substantial profits, and rapid technological change.

In contrast, business investment in structures rose more modestly in the first three quarters of 1996, as this sector continued to grow out from under the large excess supply resulting from overbuilding in the 1980s. Construction in the office segment rebounded in the second and third quarters following declines in late 1995 and early 1996. Construction of industrial buildings fell off in early 1996, although it rebounded late in the year.

Investment in nonfarm business inventories declined in late 1995 as firms took steps to work off excess stocks. This effort continued into 1996, and with the March auto workers' strike cutting automobile inventories sharply, overall inventories declined in the first quarter. Inventory investment remained low in the second quarter, probably reflecting the unexpected strength in demand and, perhaps, further efforts by some firms to limit stocks. Inventory investment picked up in the third quarter, however, as final sales slowed and some firms may have moved to replenish stocks. Yet despite the third-quarter rise, inventory-to-sales ratios remained historically lean, suggesting that the increase should not cause a drag on production into 1997.

International Influences

The Nation's trade deficit expanded in the first three quarters of 1996, riding a combination of strong domestic demand and weaker activity in foreign markets. In real terms the deficit on trade in goods and services (on a national accounts basis) reached a 2-year low in the fourth quarter of 1995. The deficit expanded in each of the three subsequent quarters. This increase reflected a large rise in imports. Real imports of goods and services over the first three quarters rose at a 10.0 percent annual rate, while exports increased at only a 2.2 percent rate. In 1996, slower growth in economic activity in our major foreign markets negatively affected U.S. exports. Although weak growth in our trading partners was the main cause of the increased deficit, the strength of the dollar against the yen and the major continental European currencies may also have played a small role.

In Canada, our largest export market, growth has been slowing for the last 2 years: the Organization for Economic Cooperation and Development estimates growth for 1996 at 1.5 percent, down from 2.3 percent in 1995 and 4.1 percent in 1994. This slowdown, which was partly due to slower growth in government spending, was partly responsible for slower growth of U.S. exports to Canada: merchandise exports grew by only 3 percent in the first half of 1996, down from 11 percent in 1995. The Canadian economy picked up in the third quarter, and U.S. exports rose substantially from 1995 levels.

In the European Union, our second-largest export market, GDP growth slowed to an estimated 1.6 percent in 1996, about a percentage point lower than in 1995. Among the major EU countries, investment spending was weak in France and Germany, while government consumption expenditures contracted in Italy. Low consumer confidence also held back aggregate demand in Continental Europe. As a result of this weaker economic performance, growth in U.S. exports to the European Union slowed sharply in the first 11 months of 1996.

Growth is estimated to have slowed in Singapore and South Korea, because of oversupply in the market for certain electronic goods, and to have stayed virtually unchanged in Hong Kong and Taiwan. U.S. exports to these four markets expanded only 2 percent in the first 11 months of 1996, after growing at a rapid pace in 1995.

Activity in some other key export markets picked up in 1996. Japan saw substantial growth for the first time since 1991, although it was concentrated in the first quarter. Growth for all of 1996 is estimated to have been 3.6 percent, after 4 years of annual growth averaging less than 1 percent. U.S. exports to Japan expanded by a healthy 6 percent in the first 11 months of 1996, although this was below the strong pace in 1995. This partially reflects fluctuations in the value of the yen, which peaked at about 80 to the dollar in April 1995 and has since depreciated over 40 percent, making imports from the United States more expensive for Japanese residents.

Mexico pulled out of its severe 1995 recession last year, with estimated growth of 4.0 percent following a 6.9 percent contraction in 1995. Reflecting this turnaround, U.S. merchandise exports to Mexico expanded 21 percent in the first 11 months of 1996, after contracting sharply in 1995.

Although the growth rates of our trading partners have probably been the more important determinant of our trade balance, the level of the dollar might have had an influence as well. The dollar, measured against the currencies of the other major industrialized countries, fell to its lowest levels in almost 3 years in mid-1995. Since then it has appreciated by around 33 percent against the yen and around 11 percent against the deutsche mark. This pattern of depreciation followed by appreciation may explain part of the slowing in imports in late 1995 and the increase in 1996. However, exchange-rate movements were probably not the dominant cause of recent increases in the trade deficit for three reasons. First, although the dollar has moved against some currencies, its effective exchange-rate index, when weighted according to trade shares, has appreciated only 6 percent in real terms since mid-1995. Second, a lag of 2 or more years generally is seen before an import price change has its full effect on volumes. Third, the initial effect of an appreciation is generally to lower import prices, and therefore lower the dollar value of import spending (the valuation, or J-curve, effect), not to raise it.

Fiscal Policy

The Federal Government budget deficit for fiscal 1996 was $107 billion, a reduction of $57 billion from 1995. The deficit has now declined in each of the last 4 years, for the first time since the 1940s. Last year's unified deficit was just 1.4 percent of GDP, the smallest deficit by this measure since 1974. The U.S. general-government (combined Federal, State, and local) deficit was the smallest among the large industrialized countries. Moreover, the budget last year showed a primary surplus (defined as revenues less outlays other than net interest) of $134 billion, the largest ever, and the largest as a share of GDP since the 1950s. Indeed, the budget would have been in balance last year were it not for the interest due on the debt run up between 1981 and 1992. The low level of the budget deficit in recent years is reflected in the ratio of publicly held Federal debt to GDP, which has stabilized since 1993, after nearly doubling over the previous 12 years.

Part of this improvement in the deficit reflects the economic expansion. As output and employment grow, tax revenues are boosted and some types of expenditures, especially transfers to low-income households, decline. But policy changes have been important as well. As already noted, the standardized-employment deficit, as a share of potential GDP, which is measured holding the level of economic activity constant, has fallen for 4 straight years and was lower last year than it has been since 1974.

The recent progress on the deficit reflects in large part the increases in revenue and reductions in government spending due to the Omnibus Budget Reconciliation Act of 1993. The Administration has worked hard to increase the efficiency of government and has reduced the Federal workforce substantially. By October 1996, Federal civilian employment (excluding the Postal Service) had declined by more than 250,000 since January 1993. The Federal workforce is smaller than it has been in 30 years, and smaller as a share of the total workforce than it has been since the 1930s.

As a result of disagreements between the White House and the Congress over the budget, two partial Federal Government shutdowns occurred in late 1995 and early 1996. Although these closures temporarily interrupted the disbursement of some Federal spending, the overall stance of fiscal policy was largely unaffected because most of the spending was later restored. The shutdowns did, however, have a small, temporary effect on the level of real GDP because a large proportion of Federal workers did not work during the shutdowns. A related disagreement over passage of an extended increase in the debt ceiling on Federal borrowing authority forced the Secretary of the Treasury to take a number of extraordinary actions to ensure that the United States did not default on its debt obligations for the first time in its history. The debt ceiling bill was not passed until March, and the final spending bills for fiscal 1996 were not passed until April, more than 6 months after the start of the fiscal year.

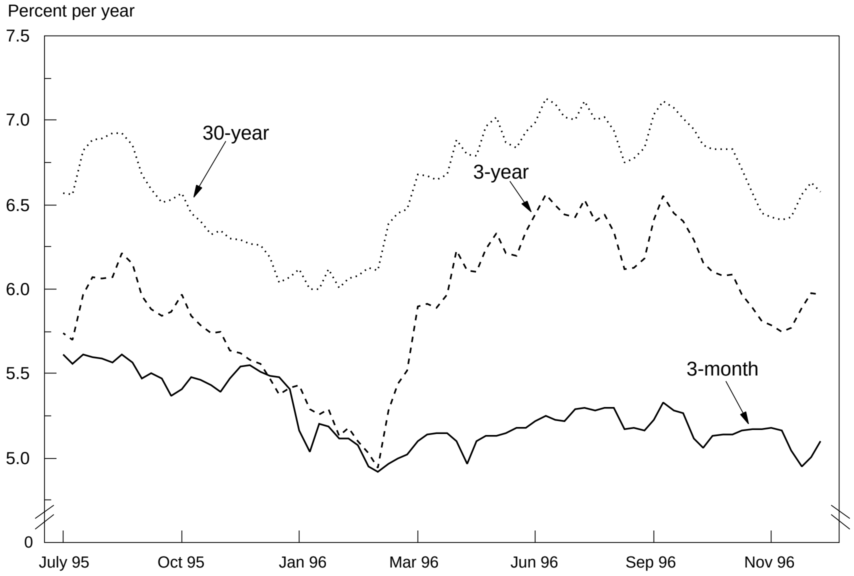
Monetary Policy and Interest Rates

Monetary policy changed little during 1996. The Federal Reserve cut the Federal funds rate by one-quarter percentage point at the end of January 1996. This cut, following a similar-size cut in December 1995, brought the funds rate down to about 5.25 percent, where it remained for the rest of the year. Other short-term market rates declined with the Federal funds rate early in the year but drifted slightly higher over the late spring and summer. Evidently the pickup in economic growth was seen in the markets as eliminating the possibility of further policy easing, and later led many investors to expect tighter monetary policy. Indeed, the minutes of the Federal Open Market Committee meetings held in the summer and fall show that, although the committee chose to leave policy unchanged, the members did see the risks as skewed toward an intensification of inflation pressures, to which they would have had to react with tighter policy. However, expectations of Federal Reserve action subsided as economic growth moderated without a change in monetary policy and as new data continued to show few signs of a pickup in inflation. As a result, short-term rates retraced some of their earlier rise. By year's end, expected future Federal funds rates, as measured by prices in the Federal funds futures market, were about flat, suggesting that market participants no longer thought that policy was likely to change in the near term.

Intermediate- and long-term rates followed the same general pattern as short-term rates over the course of the year, but the movements were considerably larger (Chart 2–9). By late February, intermediate- and long-term rates began to rise, and throughout the spring and early summer stronger-than-expected economic data pushed rates higher. By July the yield on 30-year Treasury bonds had risen more than a percentage point from its January low. Later in the year, when economic growth moderated and concerns about possible Federal Reserve policy action eased, longer term rates fell; they rebounded, however, to finish 1996 more than half a percentage point higher than at the start of the year.

Chart 2-9 **Yields on Treasury Securities**

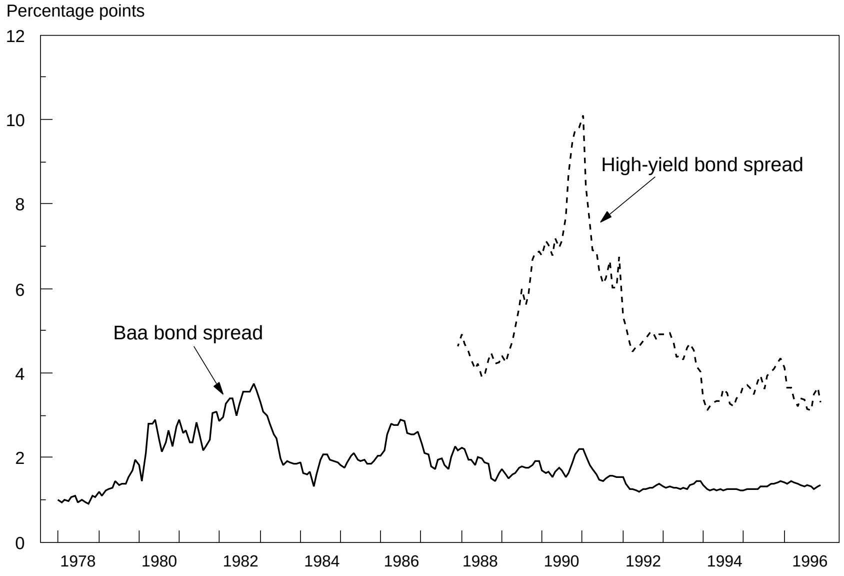
Intermediate- and long-term interest rates fluctuated with the pace of economic activity, rising between February and September, easing somewhat in the fall, but then picking up again.



Source: Department of the Treasury.

Rates on corporate bonds followed those on Treasury securities, as risk spreads remained quite narrow (Chart 2–10). The average spread between the rate on Baa-rated corporate bonds and that on 30-year Treasury bonds changed little over the course of the year, ending up at about 1.35 percentage points, fairly narrow by historical standards. The spread between rates on the high-yield bonds issued by riskier firms and those on comparable Treasury securities narrowed considerably in early 1996, following a steady increase in 1995. This spread, which was about 3.5 percentage points at year's end, is also quite narrow by historical standards. Similarly, spreads between rates on bank loans to businesses and market rates remained narrow as banks reported heavy competition from other banks and, to a lesser extent, nonbank lenders.

Chart 2-10 **Bond Yield Spreads**
Risk spreads between corporate bonds and Treasury securities remained narrow in 1996.



Note: Baa spread is the difference between yields on Baa-rated corporate bonds and 30-year Treasuries. High-yield spread is the difference between yields on the Merrill Lynch High-Yield Master II index and 10-year Treasuries.
Sources: Department of the Treasury, Moody's Investors Service, and Merrill Lynch.

These narrow spreads suggest that the markets believe the risk of corporate default to be unusually low, reflecting in part the robust profits enjoyed by U.S. firms in 1996. Indeed, in contrast to some measures of household stress, measures of business financial difficulties remain quiescent. Delinquency and charge-off rates for business loans at banks are near their recent lows and well below their levels in the mid-1980s. Similarly, the number of business bankruptcies remains quite low.

Strong profitability helped boost broad stock market indexes to successive record highs over the course of the year despite the rise in longer term interest rates. Indeed, the rise in stock prices outran corporate profits, so that the ratio of stock prices to recent earnings was elevated at year's end, but still below its 1992 and 1993 peaks. The runup in stock prices could reflect a number of factors. Investors may anticipate further rapid growth in earnings and dividends, or a decline in real interest rates as further progress is made in reducing the budget deficit. Investors may also have gradually reduced the compensation they demand for bearing the risk associated with holding stocks, because they expect the current, more stable, low-inflation environment to persist, or because of the influence of well-publicized research showing that equities have consistently outperformed other financial investments over long holding periods. The rise in stock prices may also reflect the impact of financial market innovations that have led to an unprecedented channeling of savings into the equity market through pension and mutual funds.

OUTLOOK AND FORECAST

One way to project the future is to extrapolate the recent past. For such a calculation it matters how fast real GDP has grown during the current expansion. Measured on the product side, real output has grown at a 2.0 percent annual rate since the business-cycle peak in the third quarter of 1990, while the income-side measure has grown at a 2.3 percent annual rate (Table 2–3, line 13). As already discussed, it seems that the truth is likely to be closer to the income-side measure.

Components of Long-Term Growth

It is useful to begin the discussion of the long-term outlook with the components of aggregate supply. Whether one considers income- or product-side measurement more accurate, it remains true that real output has decelerated during the current business cycle from its pace between the business-cycle peaks in 1973 and 1990. The deceleration is more than explained by the slowing of both of the two components of labor force growth, the working-age population and the labor force participation rate.

Since 1989 the participation rate has been virtually flat, in sharp contrast to the rising participation rates of the 1970s and 1980s. This stalling of the overall participation rate is due mainly to a deceleration in the participation rate for women; the participation rate for men has fallen no faster than in earlier years. The flattening of the female participation rate is probably the result of long-term demographic trends. The child dependency ratio (the number of children per woman aged 20 to 54) fell between the late 1960s and the early 1980s, echoing the earlier pattern in the birth rate.

TABLE 2–3.—*Accounting for Growth in Real GDP, 1960–2003*

[Average annual percent change]

Item	1960 II to 1973 IV	1973 IV to 1990 III	1990 III to 1996 III		1996 III to 2003
1) Civilian noninstitutional population aged 16 and over	1.8	1.5	1.0		1.0
2) PLUS: Civilian labor force participation rate[1]	.2	.5	.0		.1
3) EQUALS: Civilian labor force[1]	2.0	2.0	1.0		1.1
4) PLUS: Civilian employment rate[1]	.0	–.1	.1		.0
5) EQUALS: Civilian employment[1]	2.0	1.9	1.0		1.1
6) PLUS: Nonfarm business employment as a share of civilian employment[1,2]	.1	.1	.3		.1
7) EQUALS: Nonfarm business employment	2.1	2.0	1.3		1.2
8) PLUS: Average weekly hours (nonfarm business)	–.4	–.3	.1		.0
9) EQUALS: Hours of all persons (nonfarm business)	1.6	1.7	1.4		1.2
10) PLUS: Output per hour (productivity, nonfarm business)	2.8	1.1	.9	[3](1.2)	1.2
11) EQUALS: Nonfarm business output	4.5	2.8	2.3	[3](2.7)	2.4
12) LESS: Nonfarm business output as a share of real GDP[4]	.3	.1	.3	[3](.4)	.1
13) EQUALS: Real GDP	4.2	2.7	2.0	[3](2.3)	2.3

[1] Adjusted for 1994 revision of the Current Population Survey.

[2] Line 6 translates the civilian employment growth rate into the nonfarm business employment growth rate.

[3] Income–side definition.

[4] Line 12 translates nonfarm business output back into output for all sectors (GDP), which includes the output of farms and general government.

Note.—Detail may not add to totals because of rounding.

Except for 1996, time periods are from business–cycle peak to business–cycle peak to avoid cyclical variation.

Sources: Council of Economic Advisers, Department of Commerce, and the Department of Labor.

The decline in this ratio allowed an increasing fraction of women to enter the labor force between the mid-1970s and the mid-1980s, but its subsequent flattening in the late 1980s has limited further increases in participation.

The participation rate rose 0.15 percentage point in 1996, an acceleration from its recent stagnation, but below its pace in the 1970s and 1980s. Both male and female participation rates contributed to the acceleration in 1996. The male participation rate flattened out, after years of decline, while female participation rose 0.32 percentage point—faster than its recent pace but more slowly than in earlier decades.

Table 2–3 shows the contributions of population, labor force participation, and productivity growth to output growth, both historically and as projected. In the past, the contributions of these supply-side factors have varied substantially across time periods, and in ways that have tended to be offsetting. During the 1960–73 period, output growth was fueled by a rapid increase in both the working-age population and productivity. When productivity slowed after 1973, the slowdown was partially offset by an increasing rate of labor force participation. Growth in the working-age population was dramatically slower after 1990, but this slowdown was partly countered by stabilization in the length of the workweek.

The last column of Table 2–3 illustrates how the Administration's forecast of 2.3 percent average annual GDP growth for the next 7 years is consistent with projections of 1.0 percent growth in population, 0.1 percent growth in participation, and 1.2 percent growth in productivity.

As noted, the participation rate has turned up in the past year and may even rise faster to the extent that the recently enacted welfare reform legislation moves greater numbers of former recipients into the paid labor force. Measured productivity is expected to grow a bit faster than in the recent past, as further deficit reduction boosts investment, and as planned adjustments to the CPI, which will affect the measurement of productivity, are implemented.

As of December 1996 the current expansion had lasted 69 months, making it the third longest in the postwar record. There is no foreseeable reason why this expansion cannot continue. As last year's *Report* argued, expansions do not die of old age. Rather, most recent expansions have ended because of rising inflation, financial imbalances, or inventory overhangs. None of these conditions exists at present. As discussed earlier in the chapter, the financial condition of households is sound, inventories remain lean, and inflation remains under control.

Inflation Considerations

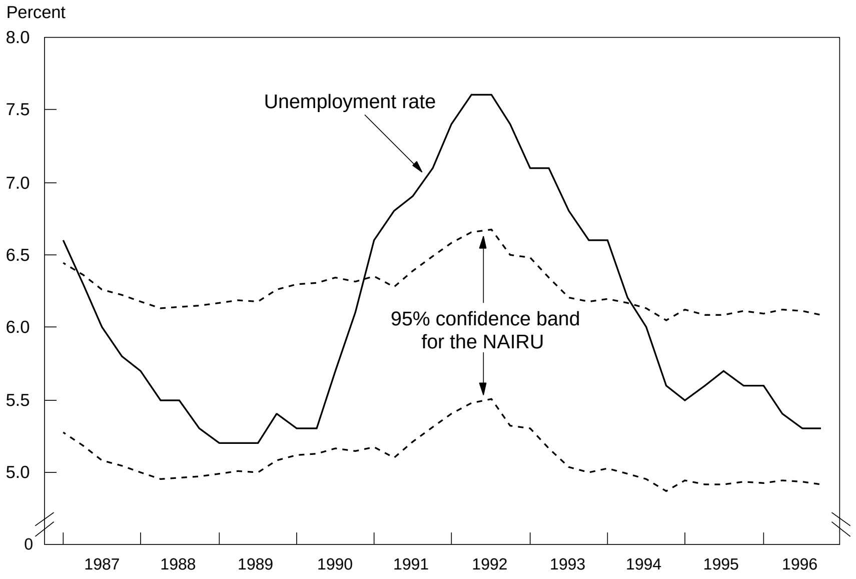
The unemployment rate has fallen during the past 6 months, although it remains within a range that most economists would view as consistent with stable prices (Chart 2–11). The chart shows the band of uncertainty about the natural rate, and this band is wide. Despite the recent decline in unemployment, inflation remains stable, and economists are gradually revising down their consensus estimate of the natural rate.

Some have pointed to the acceleration in wages and salaries over the past year as proof that labor markets are tight enough for inflation to begin rising. However, wages and salaries are only one part of labor costs; the other component, hourly benefits, has slowed dramatically over the past few years. Most of the slowing has been in health insurance premiums. As a result, total hourly compensation for private industry workers as measured by the employment cost index (ECI) increased only 2.9 percent during the 12 months ending in September 1996—not much different from its rate during the previous 2 years. This pace for hourly compensation, less the 1.1 percent trend for productivity growth, implies that trend unit labor costs are increasing at a 1.8 percent annual rate. As this is far below the pace of recent price inflation, labor costs are not putting any upward pressure on prices (Chart 2–12).

This reduction in the rise of employers' health premiums may be temporary. Therefore it is worth entertaining the notion that wages and salaries are the best measure of the trend in compensation. In this case, trend unit labor costs would increase by the 3.3 percent

Chart 2-11 **Unemployment and the NAIRU**

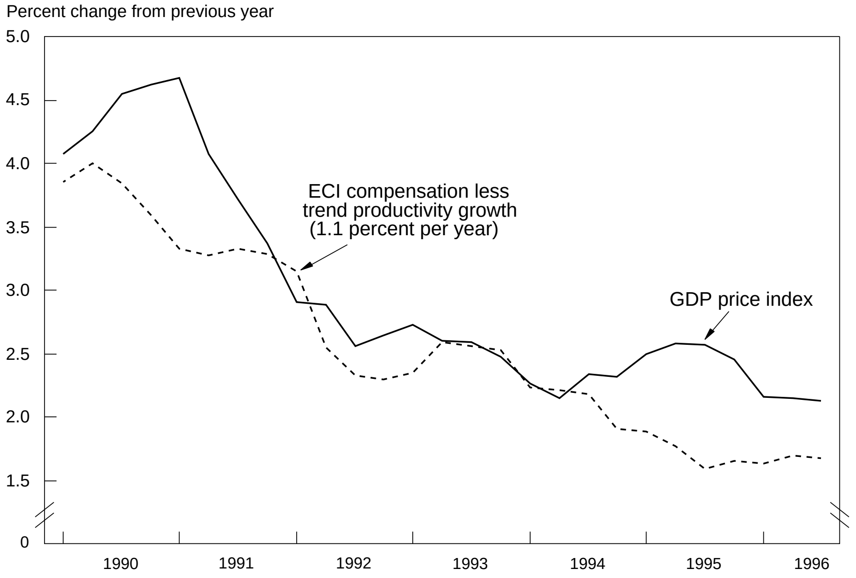
For the past 3 years, the unemployment rate has been within the (wide) band of reasonable estimates of the NAIRU.



Source: Calculations based on Department of Labor data.

Chart 2-12 **Inflation and Trend Unit Labor Costs**

Inflation has been held down recently by low increases in trend unit labor costs.



Sources: Department of Commerce and Department of Labor.

rate of ECI wage growth seen recently, less the 1.1 percent trend rate of productivity growth discussed earlier, resulting in an estimate of 2.2 percent. This differs little from the recent rate of inflation as measured by the price index for GDP (which is lower than CPI inflation). Wage increases are thus high enough so that workers share in productivity increases, but low enough that they do not put upward pressure on inflation.

But the case against a near-term outbreak of inflation is stronger. First, as already noted, slow growth in hourly benefits has been holding down labor costs and may continue to do so. Second, corporate profits are very high; profits as a share of GDP during the first three quarters of 1996 were higher than for any three-quarter period since the 1960s. Thus, profits could be a temporary buffer preventing accelerating wages from being immediately passed through to accelerating prices. In sum, with continued growth of productivity, with sustainable wage growth and with high profits as a buffer, the U.S. economy has room for a sustained increase in real wages—without rising inflation.

The rate of inflation in 1996 has been elevated by rapid increases in food and energy prices. These prices are not expected to grow any faster than other prices over the next year, and so the rate of increase in the CPI is expected to edge lower. Also holding down measured inflation over the next 2 years, by about 0.3 percentage point per year, are methodological changes that are already under way. The BLS estimates that by fixing a problem encountered when new stores are rotated into the sample, CPI inflation will be lowered by 0.1 percentage point. (This fix was completed in July 1996.) The forecast assumes that new procedures for calculating the hospital services price index will lower CPI inflation by about another 0.1 percentage point. Beginning in 1997, the BLS will collect transaction prices where available rather than list prices for hospital services, and will reorganize their categories so that inpatient and outpatient surgery might be substitutable. Finally, in 1998 the BLS will also replace its current market basket, based on 1982–84 data, with one based on 1993–95 data. Usually the items with the smallest price increases receive the largest increase in weights. The forecast assumes that the incorporation of the new market basket will lower CPI inflation by 0.1 percentage point. The importance of information-processing equipment alone will rise by enough to lower CPI growth by 0.02 percentage point per year, assuming prices for such goods continue to fall at a 10 percent annual rate as they have recently.

The Near-Term Outlook

With inflation not a problem, the economy can continue to move forward at a sustainable rate. Aggregate demand is likely to be sufficient. Consumption, which is two-thirds of the economy, should be supported by a combination of high income growth, high consumer confidence, and a high level of household net worth relative to income. Business investment in equipment probably will continue to react to the rapid improvements in technology—especially in computers and telecommunications equipment. However, it seems likely that equipment investment will not continue to grow at the torrid rate of the past few years. The market for business structures should remain on track as vacancy rates continue to decline. Finally, net exports were a drag on economic growth in 1996, as growth in many of our trading partners lagged behind our own. But there are signs that foreign growth is picking up, and exports should soon reflect this.

TABLE 2–4.—*Administration Forecast*

Item	Actual		1997	1998	1999	2000	2001	2002	2003
	1995	1996							
	Percent change, fourth quarter to fourth quarter								
Nominal GDP	3.8	[1] 5.0	4.6	4.7	5.0	5.0	5.0	5.0	5.0
Real GDP (chain–type)	1.3	[1] 2.8	2.0	2.0	2.3	2.3	2.3	2.3	2.3
GDP price index (chain–type)	2.5	[1] 2.2	2.5	2.6	2.6	2.6	2.6	2.6	2.6
Consumer price index (CPI–U)	2.7	3.2	2.6	2.7	2.7	2.7	2.7	2.7	2.7
	Calendar year average								
Unemployment rate (percent)	5.6	5.4	5.3	5.5	5.5	5.5	5.5	5.5	5.5
Interest rate, 91–day Treasury bills (percent)	5.5	5.0	5.0	4.7	4.4	4.2	4.0	4.0	4.0
Interest rate, 10–year Treasury notes (percent)	6.6	6.4	6.1	5.9	5.5	5.3	5.1	5.1	5.1
Nonfarm payroll employment (millions)	117.2	119.5	121.1	122.4	123.9	125.6	127.4	129.1	130.8

[1] Estimates.

Sources: Council of Economic Advisers, Department of Commerce, Department of Labor, Department of the Treasury, and Office of Management and Budget.

In 1997 and 1998 the Administration projects a 2.0 percent increase in output (Table 2–4), slightly below the potential pace, but in line with the consensus. The balance of the Administration's forecast is built around a 2.3 percent growth rate of potential output. The Administration does not think that 2.3 percent real growth in the long term is the best the United States can do. This projected pace reflects a conservative estimate of the effects of Administration policies to promote education and investment and to balance the budget. The outcome could be even better. But the Administration's forecast is used for a very important purpose: to project Federal revenues, outlays, and the Federal deficit. For this purpose the most important virtues are credibility and conservatism, and the Administration has remained close to mainstream thinking on these issues. The Administration's forecasting record is good, and the projections here are close to the consensus of private forecasters.